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CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

AN ADDRESS on Disease of the Stomach and its Surgical Treatment. By JAMES SHERREN, C.B.E., F.R.C.S. 477

LETTSOMIAN LECTURES on the Treatment of Pulmonary Tuberculosis. By R. A. YOUNG, C.B.E., M.D., B.Sc., F.R.C.P.—(Lecture II.) 481

ORIGINAL ARTICLES.

Bilharzial Papillomatosis of the Rectum. By ROBERT V. DOLBEY, M.S., F.R.C.S., and IBRAHIM FAHMY, F.R.C.S.—(*Illustrated*) . 487

A Note on Post-operative Insanity. By A. J. COKKINIS, M.B., B.S., F.R.C.S. 488

A Simple Method of Preparing Hands and Gloves for Operation. By G. W. THEOBALD, M.B., B.Ch., and J. W. BIGGER, M.D., F.R.C.P.. 489

Bed-isolation, with Special Reference to Measles and Chicken-pox. By E. H. R. HARRIES, M.D., D.P.H.—(*Illustrated*) .. 491

MEDICAL SOCIETIES.

Royal Society of Medicine: Section of Pathology: "Aleukia" 495

Medical Society for the Study of Venereal Diseases 496

Society of Medical Officers of Health: Bed-isolation 497

Partick and District Medical Society, Glasgow: Furunculosis. 499

REVIEWS AND NOTICES OF BOOKS.

Organic Arsenical Compounds. By Prof. George W. Raiziss, Ph.D., and J. L. Gavron, B.S.. . 499

Man's Mental Evolution, Past and Future. By Harry Campbell, M.D., F.R.C.P. 500

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Bergey's Manual of Determinative Bacteriology . 500

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X.—Obligations to His Patient. By JAMES NEAL, M.R.C.S. 501

LEADING ARTICLES.

HARNETT *v.* BOND AND ADAM 503

ON WASHING AND ASEPSIS 503

THE INVESTIGATION INTO FOOT-AND-MOUTH DISEASE 504

ANNOTATIONS.

The Danger of Frozen Schick Serum 505

Radiotherapy for Sarcoma 505

The Physicians' Library of Philadelphia 506

A New Method of Rationing Artificially-fed Infants—(*Illustrated*) 506

The Tuberculosis Nurse .. 507

The Resistance of Insulin to Heat 507

The Population of Scotland 508

The Oxford University Press..... 508

The Medical and Dental Registers 508

MODERN TECHNIQUE IN TREATMENT.

LXI.—The Treatment of Malaria as Met with in English Practice. By PHILIP MANSON-BAHR, M.D., F.R.C.P. 509

MEDICINE AND THE LAW.

Harnett *v.* Bond and Adam 511

PUBLIC HEALTH SERVICES.

The Lock-up Surgery in Insurance Practice 514

A Prompt School Medical Report..... 515

THE SERVICES.

Royal Army Medical Corps.—Royal Air Force.—Deaths in the Services 515

CORRESPONDENCE.

Medical Men, the Law, and the Public (Dr. E. D. Macnamara) 515

A Standard Diet for Insulin Treatment (Dr. A. Clarke Begg) 516

Humanity of Methods of Slaughter (Dr. W. A. Berry) 517

In the Matter of "Dichotomy" (Dr. Priestley Smith and others) 517

Leprosy: A Self-healing Disease (Dr. J. A. Shaw-Mackenzie) 517

Treatment of Uterine Fibroids (Dr. Alfred C. Jordan) 518

Auto-hæmo-therapy (Dr. T. C. Clare) 518

OBITUARY.

Robert Guthrie Poole Lansdown, M.D., B.S.. 518

Johnson Symington, M.D., F.R.C.S..... 519

Henry Walter Verdon, F.R.C.S. 519

Wm. Arthur Bond, M.D., M.R.C.P. 519

Effingham Carroll Mac-Dowel, M.D., F.R.C.P... 520

MEDICAL NEWS.

University of Oxford: Rolleston Memorial Prize, 1924: Christopher Welch Scholarship in Biology, 1924 520

University of London 520

Brighton, Hove, and Preston Dispensary 490

Sussex Throat and Ear Hospital 499

Presentations to Medical Men 502

The Dominions Hospitality Committee 509

The late Dr. T. Dobson ... 520

Worthing Hospital..... 520

Fellowship of Medicine and Post-Graduate Medical Association 520

Encephalitis Lethargica in Manchester 521

Académie des Sciences et Lettres de Montpellier.. 521

Foot-and-Mouth Disease Committee..... 521

Chadwick Public Lectures 521

Insurance Funds and Voluntary Hospitals.... 521

Large Scale Production of Insulin by the "Acetone-Picrate Process" 521

Lister Memorial Fund 521

Joint Council of the Order of St. John and British Red Cross Society 521

Legion of Honour..... 521

Oxford Ophthalmological Congress..... 521

Royal Sanitary Institute.. 521

Royal College of Surgeons in Ireland: Charter Day Dinner 521

Medical Society of London 522

Mental After Care Association..... 522

Society for the Study of Inebriety 522

The Anglo-Russian Medical Committee..... 522

Kent and Canterbury Hospital 524

PARLIAMENTARY INTELLIGENCE.

House of Lords: National Health Insurance 522

House of Commons: Small-pox in British and Indian Armies.—Report of Far Eastern Commission on Venereal Disease.—Poor-law Administration.—Compulsory Vaccination.—Mental Cases in Prisons.—Medical Appointments in Prisons.—Blind Pensioners.—Medical Examination of Air Force Candidates.—Harnett *v.* Bond.—Miners' Phthisis.—The Lister Ward 522

NOTES, COMMENTS, AND ABSTRACTS.

Where Does Mental Hygiene Begin? An American View. By L. VERNON BRIGGS, M.D. 526

Sterilisation of Rubber Gloves 528

Civil Service Bonus 528

"Popular Fallacies Explained and Corrected" 528

The Diary of a Field Ambulance 528

An Oculist's Frame-fitting Prescription Card—(*Illustrated*) 528

Leeds Workpeople's Hospital Fund 528

Bayer "205" and Fourneau "309" 528

Appointments 524

Vacancies..... 524

Births, Marriages, Deaths. 524

Medical Diary 525

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An Address
ON
DISEASE OF THE STOMACH AND ITS SURGICAL TREATMENT.

Delivered at the Surgical Section of the Royal Academy of Medicine in Ireland, on Feb. 29th, 1924,

BY JAMES SHERREN, C.B.E., F.R.C.S. ENG.,
SURGEON TO THE LONDON HOSPITAL, ETC.

I HAVE purposely left the title of my address vague, as I wish to touch upon several topics and draw attention to unsolved points in connexion with disease of the stomach.

The surgery of chronic ulcer of the stomach—I include in this term what is embryologically stomach, the duodenum to the entrance of the common bile-duct—is in a transitional state, and we have to resort still to operative measures, which are either mutilating, physiologically unsound, or both. It must remain in this condition until we have obtained exact knowledge of the cause of the disease; we can then treat the patient before these procedures become necessary. We must, I think, look on it somewhat as a reproach, that lesions, which should be capable of curative treatment by simple means, are allowed to progress until direct interference with the stomach is required to restore the patient to health. I do not consider the results of the operations we are carrying out unsatisfactory; far from it, they are excellent, in some cases little short of miraculous. In chronic ulcer, they far exceed those obtained by any form of medical treatment, whether looked upon from the point of view of cure or of the risk attaching thereto.

PREVENTABLE ABDOMINAL EMERGENCIES.

As long ago as 1911,[1] in a paper dealing with the prevention of abdominal emergencies, I expressed the opinion that perforation of a gastric or duodenal ulcer occurs in patients in whom, "in the majority of cases, symptoms have existed for weeks, months, or years, which should have led to the recognition of organic disease and surgical treatment before urgency arose." I went on as follows: "It has fallen to my lot several times to operate on cases of duodenal and gastric ulcer which had perforated while they were having ambulatory medical treatment for dyspepsia variously named." My experience since has abundantly confirmed this; and further, I have had to operate on several patients whose chronic ulcers had perforated, or caused hæmorrhage while they were undergoing a course of medical treatment in bed.

The preventable nature of many of these emergencies is corroborated by the London Hospital figures. Thus, among 218 cases of perforated duodenal ulcer treated at the London Hospital, in six only was there no previous history of indigestion. Similar figures were obtained in 248 cases of perforated gastric ulcer. In hæmorrhage due to a chronic ulcer the same applies. As the majority of these patients had had more than one course of medical treatment, several had been having intermittent treatment for 10 years and one for 32, we are perfectly justified in considering them as failures of that treatment, and, if surgery was unable to be employed successfully in these emergencies, the mortality is medical rather than surgical. This is a view I have frequently expressed, and is one which has also been ably put forward by Sir Berkeley Moynihan,[2] and recently has evoked medical criticism; it is undoubtedly correct that the mortality of the medical treatment of chronic ulcers is vastly greater than the surgical.

DEFINITION AND STATISTICS OF CURE.

I work in the belief that surgery provides in the majority of cases a cure, and I am now using this term in the sense in which it is understood by the laity—that is, a permanent abolition of symptoms. Those of us who have been operating upon large numbers of patients with these diseases have traced their after-history from year to year, and are able to speak authoritatively in the matter. In my Hunterian lecture[3] in 1920, I gave my reasons for considering those patients as cured who had gone two years without any symptoms whatever. I wish to emphasise this. None of those who came within that category and were then quite well have had further trouble. Three men, however, among those "not well" developed secondary ulcer, one a true jejunal, and two gastro-jejunal ulcers due to unabsorbable sutures, one after a chronic gastric, and one after a chronic duodenal ulcer. Patients who go for two years without symptoms never develop them later. I have found that in the rare cases of severe symptoms, six, eight, or more years after operation, the first two years were never uneventful.

I want briefly to supplement the records in that lecture, thus bringing the results up to date (to Jan. 1, 1924). In what follows I am using the term chronic ulcer to mean an ulcer that can be seen, felt, and demonstrated to others, or, as Moynihan has put it, "a visible and palpable lesion." To that date I had treated by operation 768 cases of chronic duodenal ulcer, with 15 deaths, including those operated on for hæmorrhage, 78 in number, among whom there were six deaths. I have been able to trace 500 who were operated on before January, 1922; 463 are, and have remained perfectly well. In this series, of 152 additional cases, two developed secondary ulcers, one described in that lecture and one I shall mention later. The cases of chronic gastric ulcer, operated upon to Jan. 1st, 1924, number 600 with 28 deaths. These figures include all treated except for acute perforation. I have similarly traced 403 cases, operated on before January, 1922; 311 were and had remained perfectly well; among the additional cases, one developed an anastomotic ulcer and was operated on by another surgeon, and eleven had minor complaints, but they were small. I should like to confirm what I have previously stated with regard to partial gastrectomy.[4] Its results are remarkable. I have been carrying it out regularly for certain cases of chronic gastric ulcer, and enlarging its indications for over eleven years. I have never known secondary ulceration to follow, and its after-history seems to be singularly uneventful.

Among 903 cases of chronic gastric and duodenal ulcer traced for over two years, 774 have remained absolutely well, 29 have developed secondary ulceration. In three of these the second operation was not done by myself. The letters from patients are overwhelming in their gratitude; I will quote one case as an example. In November, 1913, I operated upon a woman of 30, with a 14 years' history of attacks of epigastric pain with occasional vomiting, and one severe bout of hæmatemesis. I found an hour-glass stomach due to recurrent ulceration on the lesser curvature, with much scarring, and did a posterior gastro-jejunostomy to its cardiac side, at the same time removing her appendix. Her husband wrote on Jan. 25th, 1924, saying "whereas before the operation food of any kind resulted in absolute torture for her, she is now able to enjoy good meals and not fear after-effects." It has been my experience that, as with this patient, the remote results continue as satisfactory as the immediate.

PATHOLOGICAL PROOF OF HEALING.

But we have not only the clinical proof, the cure as understood by the laity, we have the pathological, the healing of the ulcer being demonstrated at post-mortem, long periods after the operation, or at second operations undertaken for other conditions. I have always maintained that chronic ulcers of the duodenum, unless adherent to and eroding the pancreas, heal as the result of gastro-jejunostomy, as do free ulcers on the lesser curvature of the stomach when the

[1] Clinical Journal, Sept. 6th, 1911.
[2] Lectures on Gastric and Duodenal Ulcer, 1923, p. 22.
[3] THE LANCET, 1920, i., 691.
[4] Hunterian Lecture, loc. cit.

anastomosis is done to their cardiac side. I have had the opportunity of examining, up to 12 years after operation, 31 cases of chronic duodenal ulcer, and 25 of chronic gastric. The ulcer had healed in all. I have never seen an ulcer unhealed at a remote period subsequent to gastro-jejunostomy, if that procedure was indicated and was carried out on correct lines.

CAUSES OF OCCASIONAL FAILURE TO CURE.

In spite of this, however, we very occasionally fail to "cure" the patient. The failures may be mechanical or ulcerative, both now exceedingly rare. The mechanical, revealing itself by bilious vomiting, is associated with imperfect technique, and failures from this cause become fewer and fewer with experience, but perhaps may be unavoidable on occasions for anatomical reasons, if gastro-jejunostomy is performed. I refer particularly to patients with a short or fat transverse meso-colon, or an ulcer high on the lesser curvature or posterior surface. These cases exercise one's ingenuity, and in them I endeavour to avoid gastro-jejunostomy.

Until we are accurately acquainted with the cause of gastric and duodenal ulcer, secondary ulceration will occasionally occur, although our treatment has brought about the healing of the original lesion. It seems to me hopeful that a further study of the conditions under which secondary ulcer arises may throw light on the ætiology of the primary one. I am firmly convinced that infection is the cause of gastric and duodenal ulcers. The infection may reach the stomach by the blood-stream from the mouth or abdomen or, in the latter case, the lymphatics, as suggested by Braithwaite,[5] in his work on the lymphatic flow from the ileocæcal angle. The association of acute ulcers of the stomach with abdominal infections, particularly from the appendix, is well known and demonstrated post mortem.

ACUTE ULCERS OF THE STOMACH.

Acute ulcers of the stomach are much more common than it is now fashionable to think. I believe the older physicians were right in considering the pain, vomiting, and hæmatemesis of young women due to acute gastric ulceration. These symptoms are not, of course, confined to any age or sex, but are typically met with in women between 20 and 30.

It is true that these ulcers are small, but what is the limit of the size of an ulcer? We should look on these lesions as definitely ulcers, but we must not let this conception of the condition make us advise gastric operations for their cure; we should treat their cause. We know that they usually heal readily and often relapse. They cannot be seen on external examination of the stomach, often not when the mucous membrane is directly inspected during life, and after death may only be discovered with the greatest difficulty, but in all cases of hæmatemesis in patients with this type of symptoms that have died after operation, I have been able to find acute ulcers. During the early years of gastric surgery it was customary to operate immediately on cases of profuse hæmatemesis; it is from experience gained during this period that I make the statement.

I have operated on 63 patients for hæmatemesis of this nature, not due to chronic gastric or duodenal ulcer and presumably due to acute ulceration. Three of the early cases died; in all the stomach itself had been explored at the operation and nothing found, and in all acute ulcers were demonstrated post mortem. These cases in their previous history resembled those who recovered, in whom I was unable to demonstrate an acute ulcer.

Unfortunately, diagnosis is only made possible by hæmorrhage, or very rarely by perforation, so that only in these cases is treatment at present possible. It should be on surgical lines—rest to the diseased part and removal of infection. This would, I am sure, save many from the development of chronic ulcer and the later onset of carcinoma. That acute ulcer is often followed by the chronic variety and the latter by carcinoma is undoubted. The larger my experience of gastric surgery, the more strongly do I hold the view that carcinoma is a frequent complication of chronic ulcer, which should be ever present in our mind when advising and undertaking treatment. Hardly a week passes in which I do not operate on some patient, with a history extending over many years so definite that gastric ulcer could be diagnosed—only to find carcinoma too late for removal. While revising this address I have explored a man with a history of attacks of pain after food extending over many years and diagnosed ten years previously as ulcer, who for the past nine months had had no remission, it proved to be advanced carcinoma; the day previous to this a patient who is the most recent illustration of the connexion, acute ulcer, chronic ulcer, carcinoma.

A woman of 50 came under my care with the following history: At the age of 35 she had an acute painless hæmatemesis of a severe nature. She then had occasional attacks of "indigestion" to which she paid little attention until four years previously, when she began to get definite attacks of pain after food lasting two to three weeks, with intervals of three or four months of perfect health. For three months before I saw her she had had pain every day with occasional vomiting. At operation, on Feb. 12th, I found inoperable carcinoma of the body of the stomach.

The cases of presumably acute ulcers with hæmatemesis should be given morphia and as much water by the mouth as the patient wishes. Such treatment as an ice-bag to the epigastrium, withholding of all fluid by the mouth, is illogical. Patients suffering from the results of hæmorrhage should be kept warm; ice applied to the epigastrium would have the opposite effect, and although it might constrict the superficial vessels it certainly would not have this effect on those of the stomach, rather the reverse. Sucking ice is similarly unwise. There is no reason whatever to withhold water, it can do no harm. Operation should *never* be carried out in these acute cases with hæmatemesis. The acute ulcer cannot be dealt with directly; gastro-jejunostomy cannot check the bleeding and adds enormously to the mortality, which is low. When the bleeding has ceased, every effort must be made to arrive at a diagnosis of the cause; splenic conditions, carcinoma of the stomach, cirrhosis of liver being borne in mind, as they may each cause hæmorrhage without any prodromal symptoms. If acute ulcer is the diagnosis, careful search should be made for septic foci, in the mouth, naso-pharynx, ears, and such dealt with. If no external exciting cause is discovered, the question of abdominal exploration should be considered, and I am of the opinion it is the safest procedure. In any case, if relapse occurs it should not be delayed longer than to give the patient time to recover sufficiently from the effect of the bleeding. Dealing with infection in the abdomen may prevent the formation of other acute ulcers and their development into a chronic condition. I am firmly convinced that this treatment prevents the occurrence of further acute ulcers.

Among these 63 cases explored are 29 in which definite disease of the appendix was present, in 27 no further hæmorrhage took place. In two it recurred within a year, and it is a striking fact that in both these patients the disease in the appendix was only discovered on microscopic examination, to the naked eye it was normal. All these were over three years ago, 13 of them over five. The following is a recent and most striking instance in a boy of 12 who was not restored to health without surgical intervention.

He was admitted to the wards of the medical unit, under the care of the director, Dr. Charles Miller, in January, 1921. He had had a profuse hæmatemesis, with a relapse in three days and a further hæmorrhage the day after his admission. He remained in hospital for three months and then went to a convalescent home for five weeks. He was readmitted in September after a further hæmatemesis, which recurred after he had been in hospital four days. There was no evidence of any external infection; at no time had he had pain or indigestion. As his condition remained unsatisfactory and he was not recovering, I was asked to see him, and on

[5] Brit. Jour. Surg., July, 1923, p. 7.

Jan. 10th, 1922, I operated; the stomach and duodenum, liver and spleen, were normal. The gall-bladder appeared normal. I explored it internally, took a specimen of bile, and removed the appendix, which was thickened and contained fluid. Films of this showed pus and many bacteria. Cultures from gall-bladder were sterile. He is now in perfect health and started work last August.

The infection may be in the gall-bladder and treated equally successfully. I have previously published [6] examples of acute ulcer, with hæmorrhage and perforation, associated with infection of the gall-bladder, the patients being free from gastric symptoms now eight and 12 years ago. Previously to January, 1922, I had removed the gall-bladder in 11 patients with hæmatemesis. Since that date I have operated on four and in all cultures of the bile grew colon bacilli. In none has there been any recurrence of gastric symptoms.

In a large number of cases of chronic gastric ulcer in women we find a definite history of attacks of painless hæmatemesis and of vague discomfort after food, caused, I believe, by the acute ulcer before the onset of the typical chronic ulcer symptoms. I am of the opinion that treating the acute ulceration when we can diagnose it, in the way I have suggested, will prevent the development of chronic ulcer. Not only are the cases I have quoted clinical evidence of my belief, but I have been able to keep some patients under special observation. I am surgeon to the nursing staff and am thus fortunate, in that I am able to follow up the cases. I have operated upon three nurses who had had attacks of hæmatemesis such as I attribute to acute ulceration. As there was no external cause of infection I explored and removed the appendix, which was the only obviously diseased organ. All three have remained well and at work for eight, nine, and ten years. We are not, however, always successful; we may fail to discover the cause, or be too late in its removal, so that the ulcer may recur or become chronic. The cause of chronicity we know, from Bolton's experimental work, to be excess of acid and delay in emptying the stomach. Clinical confirmation of this is obtained from the healing of chronic ulcers after gastro-jejunostomy, when acidity is lowered and gastric stasis abolished.

RECURRENT ACUTE ULCER.

There is a variety of ulcer little recognised, met with most often in women, particularly those with gastric ptosis, and frequently associated with repeated attacks of hæmatemesis; it is the recurrent or relapsing acute ulcer, with definite healing taking place between the attacks. The scarring which results may produce an hour-glass stomach and in about 8 per cent. of the cases at the time of operation for this condition the ulcer has healed. If not producing deformity the scars are easily overlooked and only revealed on careful search and are usually found close to the lesser curvature on the posterior surface of the stomach. Unless producing deformity, treatment should be directed towards other abdominal organs, notably the appendix and gall-bladder, to deal with the causative infection. These ulcers relapse, even when soundly healed. The following is a good example: In November, 1913, I operated upon a woman, aged 30, who gave a 14 years' history of periods of pain after food, with three attacks of hæmatemesis. I found an hour-glass stomach with a strait which would only admit my index finger. Exploration of the stomach revealed no recent ulceration, there was much visceroptosis, and I decided it would be worth while doing a gastro-gastrostomy; two and a half years later I had to do a partial gastrectomy on account of recurrence of symptoms. The specimen showed the anastomosis perfect, with recent acute ulceration in a scarred area on the posterior surface of the stomach. This patient has remained perfectly well.

What is the relationship that exists between the acute ulcer, the relapsing, and the solitary chronic round ulcer, the last variety so much more common in men, the well-known penetrating type which when situated on the posterior surface of the stomach involves the pancreas? These latter ulcers rarely cause an hour-glass stomach; when one is found in association it is usually due to the scar tissue formed by the healing of relapsing ulcers. I believe that the difference is to be found in the much greater acidity of the gastric contents in men than in women. In women the lower gastric acidity allows healing of the ulcer, the contraction of the scar tissue so produced accounts for the hour-glass stomach. This will explain why this relapsing type is so much more common in women and why hour-glass stomach is so rarely met with in men. I believe that in the true chronic ulcer healing does not take place between the attacks. As evidence of this we have acute perforation, by no means uncommon, or hæmorrhage, when the patient is apparently well. Spread in this variety results in perforation into the free peritoneal cavity, or erosion of the pancreas or liver and occasional hæmorrhage. It is this ulcer which is the precursor of malignant disease. The scars that are frequently found in the post-mortem room are not the scars of this type which destroy all the coats, but those of relapsing or acute ulcers.

I am convinced that they all own one cause and that it is possible, as I mentioned before, to arrest the disease before it reaches a chronic stage when nothing but a direct operation on the stomach is of avail. The following case seems to me to illustrate the development of a chronic ulcer from an acute. I believe that if abdominal exploration had been carried out earlier, as in the case I have quoted, it would have been possible to have prevented this.

In December, 1923, I operated on a girl of 24 with the following history: At the age of 17 she was treated in hospital for an attack of painless hæmatemesis. She had a further attack in 1920 when she was again treated in hospital. In November, 1922, she was once more admitted as she had begun to experience pain after food; her test-meal was then normal. After medical treatment she remained well for a year when she again had symptoms and was again an in-patient. On this occasion her test-meal was free HCl 0·26, total acidity 78, a very marked increase. After admission she had a copious hæmorrhage, vomiting blood on five occasions. At operation I found a chronic ulcer on the anterior surface of the first part of the duodenum which I destroyed by cautery and performed a posterior gastro-jejunostomy. I then looked for evidence of infection; the gall-bladder appeared normal on external and internal examination, but the appendix was fibrotic in its terminal half and the pathological report was chronic appendicitis. She left hospital for convalescent home 14 days later with a test-meal finding of free HCl 0·0 and total acidity 23.

This case seems to illustrate the transformation of an acute into a chronic ulcer with rise in gastric acidity, in spite of medical treatment under the best possible conditions.

It has fallen to my lot on several occasions to have to explore on the diagnosis of ulcer and find none, only to have to re-operate a few years later and discover a large ulcer. The following is an example:—

In October, 1915, I saw a woman of 31 with a history of attacks of pain of three to four weeks' duration with free intervals of about a month, which had extended over three years. Test-meal normal, free HCl 0·09, total acidity 49; barium meal negative. I explored and found a suspicious scarred area on the lesser curvature, but no definite evidence of ulceration. I therefore opened the stomach widely on its anterior surface and searched with a head light and speculum. I could discover no ulcer. I removed her appendix which was bound down at its base and contained a soft concretion; my note says, "but was otherwise normal." Microscopical report—"slight submucous fibrosis and muscular hypertrophy of tip of appendix." She remained well for a year, and her symptoms recurred and for the eight months before she again came to see me she had had pain and vomiting. Her test-meal showed increase (free HCl 0·12, total acidity 60) and the barium meal a penetrating ulcer. Two years after the first operation I did a partial gastrectomy for an ulcer on the lesser curvature and posterior surface which was eroding the pancreas posteriorly for an area of 1 by ¾ inch. On examining the part removed I found a linear scar where I had opened the stomach, far removed from the ulcer. She has remained quite well.

[6] Lectures on Stomach and Duodenum, 1921, p. 12.

This case is an example showing that the relapsing type of ulcer may become the chronic.

I have also had to operate on several patients who had been explored by others for hæmatemesis and after a lapse of years found a definite chronic gastric ulcer. Similarly, I know of two patients of my own whom I explored for ulcer on account of hæmorrhage and in whom, similarly, a chronic ulcer was found by other surgeons.

HOUR-GLASS STOMACH.

To pass now to a further consideration of a subject I have already mentioned, hour-glass stomach. It is astonishing that carcinoma so rarely supervenes on this condition. Thus, among 119 cases of hour-glass stomach operated upon up to Jan. 1st, 1924, there were only four cases of carcinoma, all women. In three of these the history pointed to it having followed on chronic ulcer. One case is unique in my experience; there were two chronic ulcers, one on the lesser curvature about an inch from the pylorus producing a large pyloric pouch and obviously malignant, and one high up on the lesser curvature with a small cardiac pouch. I successfully carried out partial gastrectomy. The report on the specimen by Dr. H. M. Turnbull showed that carcinomatous change had started in a simple ulcer and that the other ulcer was wholly innocent. In none of the 83 cases in which partial gastrectomy was carried out for hour-glass stomach due to what was diagnosed as simple ulcer was carcinoma discovered on microscopical examination. The great rarity of hour-glass stomach in men is striking. I have already mentioned what I considered the explanation of the frequency of this condition in women. Among the 114 cases of hour-glass stomach due to ulcer, only 12 were men, a very marked difference to the usual incidence. Thus, of 600 cases of chronic gastric ulcer operated on to Jan. 1st, 1924, 372 were men.

There is another point in connexion with hour-glass stomach in women: chronic duodenal ulceration is not infrequently found associated with it. The combination of the two is relatively no more often met with in women than in men, when looked at from the gastric ulcer standpoint; thus in 55 of my gastric ulcer cases duodenal ulceration was also present—30 men and 25 women. But we must remember that chronic duodenal ulcer itself is infinitely more common in men; thus of the 768 cases of chronic duodenal ulcer, 130 only were women, and it is striking that in the 25 of these in which gastric ulcer was present, an hour-glass stomach had been produced. In none among the 30 men was this complication found. I am under the impression that, as with acute appendicitis, ulcer is becoming a more common disease in women. Thus, in my first 100 cases operated on for chronic duodenal ulcer there were 16 women, in my last there were 27. A similar change is noted in chronic gastric ulcer. In my first 100 cases, 67 were men, in my last 100 only 59. It is difficult not to associate this with a similar striking change in the sex incidence in acute appendicitis. Thus, in the year 1922, 625 cases of acute appendicitis were operated on at the London Hospital, 278 were females (44·5 per cent.). In 1907, 311 cases were operated on; 109 (35 per cent.) only were female. I have taken only the acute cases, as in these there can be no dispute as to the diagnosis. Rendle Short,[7] in his paper on the causation of appendicitis, has also noted this. He wrote: "There used to be a marked disparity between the sexes, males being more liable. Many early figures gave the proportion as 3 males to 1 female. Of late years the difference has been less marked. In 1918, 1298 males died of the disease in England and Wales, and 1118 females."

It is not, I think, generally recognised that gastric and duodenal ulcer is often familial, and, although it is not using the term strictly correctly, hereditary. I have no doubt upon the subject, but Bolton[8] says there is no satisfactory evidence, although he quotes Dreschfeld[9] on the subject, who regarded the evidence as conclusive. I have many times operated on individuals of the same family, on several occasions after fatal disaster had happened to another member, from perforation, and have more often obtained a definite history of operations for the same condition in others. I think it unlikely that it has to do with the stomach itself, as in one member of the family the ulcer may be gastric, in another duodenal. I think the reason must be sought in the exciting cause. I have recognised for many years that disease of the appendix tends to run in families, father or mother, and then the children. I have operated on parents and children for acute appendicitis, not in an epidemic form but with the lapse of years. I have always looked upon this as being the result of some inherited anatomical peculiarity of the appendix tending to inefficient drainage, hence increasing the liability to infection. There can be now, at any rate among surgeons, no hesitation in accepting infection from the appendix as a cause of gastric and duodenal ulceration, and it appears to me that we have here the probable cause of the prevalence of ulcers in members of the same family. I have recently had a son sent to me, to be operated on for chronic ulcer at the age of 21, by his mother, upon whom I carried out partial gastrectomy for carcinoma 13 years previously, after she had had symptoms pointing to chronic gastric ulcer for 27 years, and many cases in which parents I had successfully operated on sent their children to undergo the same treatment. I have also had several cases in brothers and sisters; one that created a deep impression on me was an instance in which I did a partial gastrectomy for hour-glass stomach in one sister, the other was brought to me and at operation I found carcinoma had developed. The elder sister I operated upon in November, 1919. She was 38 years of age and gave a 21 years' history of attacks of pain after food. I found an hour-glass stomach due to an ulcer on the lesser curvature, extending to the posterior surface and eroding the pancreas, with much scarring on the anterior surface, with a large pyloric pouch from stenosis caused by a chronic duodenal ulcer. I did a partial gastrectomy and she has been in perfect health since. She sent her sister to me last March. She was 31 years of age with a ten years' history of attacks of pain after food which for the previous six months had continued without remission. I found inoperable carcinoma of the stomach. It is interesting to compare the two end-results and to speculate on the reason for their difference: the gastric ulcer in the one case leading to an hour-glass stomach, in the other carcinoma. Were we able to solve this problem we should be very near victory over malignant disease.

SECONDARY ULCERATION.

Unfortunately, we have sometimes the opportunity of tracing the development of a chronic ulcer in the secondary lesion that may arise after gastro-jejunostomy. We know that at the time the anastomosis is made there is no ulceration in the jejunum. We also know from the classical animal experiments of Bolton that in order to produce gastric ulceration there must be damage to the mucous membrane and a certain degree of free acid in the gastric contents, and that the healing of these may be delayed and the lesion become chronic in the presence of an excess of free HCl. The damage to the mucous membrane of the jejunum may be brought about by infection that we failed to treat at the original operation. Another form of damage is the use of unabsorbable suture and bruising by clamps. But I do not believe that any of these, except the use of unabsorbable sutures, is sufficient in itself. If the operation permanently abolishes free HCl in the gastric juice, chronic ulceration does not occur. I drew attention to this in my Hunterian[10] lecture and, for reasons there given,

[7] Brit. Jour. of Surg., October, 1920, p. 174.
[8] Ulcer of Stomach, p. 15.
[9] Allbutt: 1910, vol. iii., p. 449.
[10] THE LANCET, 1920, i., 691.

consider it an important cause. I think there is no doubt that a large opening removed from the pylorus produces the greatest lowering of gastric acidity, and interference with the pylorus by exclusion, or the presence of adhesions, is an important factor in keeping up the post-operative acidity. I am a whole-hearted believer in the "physiological," or, as I prefer to call it, the chemical action of gastro-jejunostomy, as opposed to the purely mechanical. In a discussion at the Harveian Society,[11] I pointed out that if the post-operative test-meal showed little or no reduction of acidity, although the stomach may be emptying rapidly through the new opening, the patient may have further digestive trouble. It is a subject at which I am still working but I can give a few results. First, I will relate a case.

In March, 1920, I operated on a male patient aged 52. I found a large ulcer of the first part of the duodenum with a perforation at its centre closed by the gall-bladder which was definitely thickened. I separated these adhesions and closed the perforation. His condition would not allow any further treatment. His pre-operative test-meal was free HCl 0·18, total acidity 75, his post-operative, free HCl 0·17, and total acidity 63. At the present time, in a case of this nature, I should as soon as possible deal with the affected gall-bladder and remove the appendix. He remained well for two months only and then began to get the pain typical of jejunal ulcer; to the left of the umbilicus late after food, waking at 2 or 3 A.M., and relieved by food. I had him under observation in September of the same year when his test-meal was free HCl 0·19, total acidity 79, and the barium meal report suggested ulcer at the stoma. I kept him in bed on alkalies, atropine, and diet, and at the end of three weeks he considered himself quite well and there was a slight lowering of gastric acidity. Three months later the same symptoms recurred and his test-meal was free HCl 0·18, total acidity 70. I therefore re-operated on June 21st, 1921. I found the duodenal ulcer healed and a chronic ulcer on the anterior surface of the jejunum. I did a partial gastrectomy; he had an uninterrupted recovery and his test-meal three weeks later showed free HCl 0 and total acidity 10. In this particular case the pylorus was interfered with in suturing the perforation and there was a definite focus of infection.

That increased gastric acidity is a most important factor in the development of secondary ulcers is certain. I will briefly give you the reasons for coming to this conclusion. In the first place there is the great rarity, as I have previously pointed out, of jejunal or gastro-jejunal ulcer in women; it has only arisen in three of my cases, in two it was directly due to a silk suture, in the third catgut only had been used, and the second operation was carried out by another surgeon. Its very great rarity after operations for gastric ulcer in both sexes is also well known; I have only seen one true jejunal ulcer. It occurred in 1911 in a male patient, aged 29, whose gastric acidity was higher after operation than before, free HCl 0·11, total acidity 52, to free HCl 0·16 and total acidity 64. The operation had been difficult. I excised a chronic ulcer from the centre of the lesser curvature and then did a gastro-jejunostomy, and I noted that I was not satisfied with the size of the new opening. The pylorus was not excluded nor the appendix removed. Three months after the original operation I excised a jejunal ulcer and removed his appendix, but his acidity remained high, free HCl 0·13 and total acidity 60, and I heard in 1920 that he had had a recurrence. The rarity of any variety of secondary lesion after operation for chronic gastric ulcer is, I think, explained by the lower acidity met with in this condition and to the fact that the post-operative acidity is very markedly reduced in a large percentage of cases. Thus, in 123 post-operative test-meals, after simple gastro-jejunostomy for a chronic gastric ulcer, in 99 there was an absence of free HCl and a low total acidity, in 15 it was much diminished, in eight reduced to normal, in only one not reduced—the case I have quoted.

To turn now to chronic duodenal ulcer. To the end of the year 1922 I have notes of pre- and post-operative test-meals on 285 cases of chronic duodenal ulcer; 37 of these showed little or no reduction in gastric acidity, and in all of these except 11 I had made a special note of some abnormality, the most common being adhesion to the gall-bladder or liver (17 cases), opening nearer pylorus than usual (3), smaller than usual (2), ante-colic operation (1), bruising around anastomosis (clamp) (3). Seventeen have had further symptoms—five jejunal ulcers. In 131 cases free HCl was absent and the total acidity low; not one of these has had any return of symptoms. There are 65 cases in which there was very great reduction, but not to the abolition of free HCl; these are all perfectly satisfactory. Fifty-two in which it was reduced to normal; while most of these remain quite well, symptoms were present in five but none developed a jejunal ulcer. We have here, I am sure, material bearing very directly indeed on the production of ulcers, and it shows beyond a doubt how bound up it is with the question of gastric acidity. That there is some specific cause acting in the formation of jejunal ulcers is obvious from the fact of their frequent recurrence if they are simply excised, just as we know the frequency with which a chronic gastric or duodenal ulcer, which has perforated, will give rise to further symptoms, sometimes even to a second perforation with fatal results, unless curative measures are adopted. To prevent the occurrence of secondary ulceration all infective foci should be dealt with, no unabsorbable material or jejunal clamp used, and a large anastomosis made removed from the pylorus—in this way I have been able to reduce the incidence of this complication to the very small figure of 2 in 276 consecutive cases of gastro-jejunostomy for chronic ulcer, operated on more than two years ago.

I have tried to emphasise the importance of recognising and thoroughly treating acute ulcers, so that the onset of the chronic type may be prevented, and to point out that although by surgery chronic gastric and duodenal ulcer can be treated with little risk and a high percentage of cure our aim should be to prevent their occurrence.

[11] THE LANCET, 1923, i., 653.

Lettsomian Lectures

ON THE

TREATMENT OF

PULMONARY TUBERCULOSIS.

Delivered before the Medical Society of London

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LECTURE II.

(Delivered on March 5th.)

DIFFICULTIES in diagnosis are not the only problems which confront us in the management of a case of pulmonary tuberculosis. To determine the value of any method of treatment is a matter of singular difficulty. This is intelligible when we consider the long course of many cases, showing periods of activity and relative quiescence. The tendency to spontaneous arrest also complicates the decision as to the efficacy of a given mode of treatment. Moreover, M. L. Renon writes of "a normal coefficient of improvement" for any remedy, due largely to the psychic effect upon the patient. A most striking illustration of this is afforded by the observation of Mathieu and Dobrovici in 1906. They prepared certain patients for what they described as a valuable new remedy for the disease, and after careful records and the usual preparation accorded to patients undergoing a new treatment on its trial they gave daily injections of 1 c.cm. of normal saline, to which they gave the high sounding name of "anti-phymose." The results were strikingly similar to those we are accustomed to see recorded in the earlier

days of any new treatment. There was a marked amelioration of symptoms, fever abated and even an actual gain of weight occurred. Even in animals it would seem that it is easy to assume too hastily that a treatment is beneficial. Dr. E. H. Kettle, in a recent paper,[1] has urged that the criteria of cure in experimental animals like the guinea-pig, require more rigid analysis than they sometimes receive.

In view of these significant observations, which should be known and recognised as widely as possible, it is important for us all to adopt a critical attitude of mind in regard to any treatment and to moderate our enthusiasm until it can be demonstrated that it gives results superior to the "normal coefficient of improvement." We must avoid the attitude of the old lady who said, "It must be good, my dear, the advertisements speak so well of it" and adopt the Hunterian maxim, "Prove all things, hold fast that which is good." Judged by this standard many forms of treatment which have had more than an ephemeral vogue should be discarded. At the same time it is wrong to adopt the attitude that every treatment, other than that of the therapeutic triad, air, food, and rest is useless. Bearing in mind these considerations we may now briefly consider various forms of treatment which have been recommended.

SPECIFIC FORMS OF TREATMENT.

(a) *Tuberculin.*

Probably no remedy in the whole realm of therapeutics has been so widely debated as this. Since its introduction by Koch in 1891, it has been the subject of waves of enthusiasm and of depreciation. It has probably suffered more from the intemperate zeal of some of its advocates than from the criticism of impartial workers. That it has failed to realise the hope that it would be a specific cure for the disease there can be few to deny. On the other hand, that it can be a useful agent in treatment is well established. It is significant that it is in the localised or surgical forms of tuberculosis that it seems to have given the best results, while in the pulmonary forms of the disease it has proved most disappointing. Numerous attempts to modify it have been made and the list of products derived from the bacillus and from its culture media, which have been employed, is a very long one. Without any attempt to be exhaustive I have obtained a list of over 80 of these products. It is worthy of notice that in the treatment of the surgical forms the varieties of tuberculin used are few and are chiefly the early products of Koch—namely, old tuberculin, T.R., and B.E.—either of human or bovine origin. In pulmonary cases it has been found that a high degree of tolerance to tuberculin may be induced by administration of this substance to patients without cure of the disease; indeed, this tolerance may coexist with progressive activity of the pulmonary lesions. The reasons for these discrepancies are still obscure, but it is tempting to try to explain them in terms of the views on the pathology of the disease to which I referred in my first lecture. The surgical form corresponds to the secondary stage, when the immunity responses may be incomplete and tuberculin may be helpful, whereas in the pulmonary forms, as shown by Sir Almroth Wright, the hæmobactericidal power may be high, but the local condition may be active, and it may be, as he suggests, that the more fruitful line of attack may prove to be by increasing leucocytic activities.

Practically all tuberculins fall into three groups: (1) The soluble products of the growth of the tubercle bacillus, in various media, the exotoxins, of which the type is Koch's original old tuberculin (T.); (2) the insoluble residues of the bacterial bodies after extraction, of which the type is T.R.; (3) mixtures of both of these, such as B.E. More recently Much and Deycke have fractioned the bacillus in different ways and obtained different substances, which are called partial antigens or partigens. In treatment either the bovine or human forms of tuberculin may be used, and some authorities start with bovine and go on afterwards to human. Friedmann prepared a vaccine from bacilli from the turtle, which has been tried extensively in Germany and America. There seems little doubt that it has no advantages over other forms; indeed, Fishberg classes its results as entirely analogous to those of antipnymose, and therefore simply due to the psychic effect of a special treatment.

Effects of Tuberculin.—Tuberculin when injected into a person who has never had tuberculosis or been exposed to infection is a non-toxic substance. When given to those who have been infected or are allergic a tuberculin reaction occurs. This consists of three distinct effects: (*a*) A *local* reaction at the site of inoculation, which varies from transient redness and swelling to extensive infiltration of the subcutaneous tissue followed by softening. (*b*) A *focal* reaction at the site of the lesion, demonstrated by reactive changes, such as pain, hæmoptysis, increased sputum, and even by demonstrable alteration of physical signs. (*c*) A *general* or systemic reaction evidenced by fever, malaise, headache, and other indications of intoxication.

There are two chief methods of employing tuberculin for therapeutic purposes. In one of these it is given in increasing doses at intervals of from three to ten days. In this method reactions are expected, but they are kept within moderate degrees and are used to determine the amount and the spacing of successive doses. The object is to achieve a high degree of tuberculin tolerance. This is probably the more effective method in localised or surgical tuberculosis, but it is not devoid of danger in pulmonary cases. The other method is to start with very small doses and not to increase the dose till the patient is immune to that last given. In this method reactions are avoided as far as possible, and tuberculin sensitiveness is retained. This, in my opinion, is the only safe method in pulmonary cases. The doses are usually measured in milligrammes, as described by Koch, or in cubic centimetres of the original fluid supplied by the makers. Riviere and Morland suggest the use of the cubic millimetre as the measure of dosage, a method which has definite advantages. The preparation of dilutions is easily effected by means of a series of sterile amber-coloured glass bottles. Into each of these 9 c.cm. of a 0·8 sterile solution of sodium chloride in water containing 0·5 per cent. of phenol is placed. To the first of these 1 c.cm. of the original tuberculin solution is added. After thorough admixture 1 c.cm. of the resulting 1 in 10 dilution is put into the second giving a 1 in 100 dilution and so on. The sixth bottle will contain a dilution of 1 in a million and 1 c.cm. of this fluid would be equal to 0·001 c.mm. of the original fluid. Since the various tuberculins as supplied differ in strength this dose would be equivalent to 1/1000 mg. in the case of T., B.F., or A.F. 1/100,000 mg. of T.R. and 1/500,000 mg. of B.E. In the case of the second method of using tuberculin, these are suitable doses to commence with. Those who use the first method often commence with much larger doses, even as large as 0·5–1·0 c.mm. of the original fluid.

Tuberculin has been given by the mouth, by the rectum, by nasal insufflation, and by percutaneous inunction. The only reliable method is by hypodermic injection under ordinary aseptic precautions, although in gland cases good results are on record from inunction.

Partial Antigens and Defatted Vaccines.—The observations of Deycke and Much are of great interest and deserve more attention than they have received in this country. In the first instance by treating the bacilli with lactic acid they obtain two fractions: (1) referred to as M. Tb. L., which is soluble and contains the toxin partigen; (2) referred to as M. Tb. R., which is the residue. This they fraction further into three parts called respectively A., F., and N. A. represents the protein fraction, F. the fatty acid lipoid mixture, and N. the neutral fat, wax, fatty alcohol group.

[1] THE LANCET, 1924, i., 68.

In treatment they use either the mixture M. Tb. R. or the three partigens A., F., and N. either singly or in varying combinations. The method as employed by Much is somewhat complicated.[2] He first determines the patient's sensitiveness to M. Tb. R. and to A., F., and N., by intracutaneous tests. He then gives daily injections of A., F., and N. in the proportions these tests demonstrate to be necessary, increasing the dose gradually. Then after an interval of two or three weeks further tests are carried out and a further course of partigens in appropriate strength and proportions is given. Much claims that by this method the toxic factor M. Tb. L. is removed, whereas it is retained in the ordinary forms of tuberculin. More recently he has suggested that some of the beneficial effects of treatment by bacterial fractions are non-specific. His method has been extensively used in Germany by various observers, notably Klare, Altstaedt, and Ott. The statistics recorded are contradictory, some describing excellent results, others, like Ott, maintaining that the method has no advantages over tuberculin.

A recent modification of tuberculin, the "diaplyte vaccine" of Dreyer[3] has attracted a considerable amount of notice. Tubercle bacilli are treated with hot formalin and extracted with acetone repeatedly until they are non-acid fast or "defatted." They are then dried and ground with sterile salt solution. After dilution the suspension is centrifugalised, the clear fluid is pipetted off, and the amount of defatted bacillary substance in it is determined. From this stock suspension the doses of vaccine are prepared. This substance is still on its trial, and no definite statement can yet be made as to its value. It seems not to cause the local reaction seen with the ordinary forms of tuberculin.

Other forms of defatted tubercle vaccine have been prepared in Germany—e.g., Uhlenhuth used trichlorethylene for this purpose. As at present used tuberculin seems to have only a limited field of action in pulmonary cases. In general I am more convinced of its power for harm in pulmonary cases than of its usefulness, unless it is given cautiously under such conditions as I have just mentioned. In my experience its chief use has been in cases which have proceeded to arrest, but in whom there is still left a small amount of sputum containing tubercle bacilli. Cautious administration of small doses of B.E. or T.R. avoiding general or focal reactions, if possible, seems sometimes to dry up the sputum and to consolidate arrest. Although it has been recommended in febrile cases, its employment here seems to me irrational, if not dangerous. It is obvious that if it is given in doses sufficient to cause a severe focal reaction or a marked general reaction serious harm may ensue.

It is possible that some modification of the partigen treatment may prove of value in prevention and in treatment, but it must be confessed that at present the omens in regard to tuberculin treatment in pulmonary cases are not favourable.

(b) *Serum Treatment.*

Many attempts to afford some degree of passive immunity by serums have been made, but so far the results seem to have been even less encouraging than those of tuberculin. I find no less than 18 different serums mentioned. The earliest of these is that of Maragliano, first used in 1895 but now discarded. Marmorek's serum was introduced in 1903 and was tried in this country for a time. Recently, considerable notice has been given in the lay as well as in the medical press to the treatment proposed by Mr. Spahlinger, of Geneva. Full details of his method have not been published, and certain of the processes used in the preparation of his remedies have hitherto been kept secret. In so far as his treatment has been described by him, it consists of two forms, one of which, the antitoxin, is primarily intended for the acute cases, while the other involves active immunisation and is carried out by bacillary extracts or vaccines prepared by special processes. The "complete serum" is said to be both antitoxic and bacteriolytic, and is made up of several "partial serums" derived from horses treated with various toxins separated from the tubercle bacillus and its products, together with some serums obtained by inoculation of horses with certain secondary organisms. In the vaccine treatment four distinct vaccines are employed, each given in a separate course, the treatment being spread over several months. From various causes there has been great delay in preparing the complete serum, and restrictions and difficulties have been placed in the way of its widespread trial. A certain number of cases have been recorded apparently showing encouraging results, but sufficient data are not yet forthcoming to allow of a critical examination of the value of this treatment.

Quite recently Uhlenhuth has prepared a serum from cattle inoculated with large doses of avirulent tubercle bacilli, and this has been used by Czerny in 20 cases of severe tuberculosis of the lung with good results.

Spengler's I.K. treatment may here be mentioned. It is made from the red blood corpuscles of rabbits immunised with the *Bacillus humano-longus*. They are freed from protein and pigment and used in lactic acid suspension. This treatment now has very few adherents in this country.

Secondary Infections.

The rôle of secondary infections in this disease has been much discussed. It has been supposed that secondary organisms might play an important part in the breaking down of tuberculous lesions and in causing the symptoms associated with them. This is now generally regarded as incorrect, the tubercle bacillus being held responsible for all of the manifestations of the disease. Examination of the sputum of tuberculous patients often shows other organisms besides the tubercle bacillus, notably streptococci, pneumococci, staphylococci, Pfeiffer's bacillus, the *Micrococcus catarrhalis*, *Micrococcus tetragenus*, and Friedländer's bacillus. It is difficult to determine whether these, when present, play any active pathogenic rôle. Autogenous vaccines made from these frequently seem to have little effect. On the other hand, there are cases in which they appear to act almost dramatically. Dr. R. C. Wingfield has published an interesting note on this subject.[4] He points out that there is a type of case in which an autogenous vaccine is well worth trying. The patient generally has chronic disease, frequently rather extensive, and at intervals of a few weeks gets pyrexial attacks lasting four or five days, not apparently due to tuberculous auto-inoculation. Dr. Wingfield has usually found a streptococcus in these cases, and has had good results from vaccine treatment. He also suggests their trial in cases which "hang fire." I can confirm these observations and I also advise the use of vaccines in cases with marked catarrhal or bronchitic signs. The subject has recently been discussed at the French National Congress at Strasbourg[5] and seems worthy of further investigation.

Graduated Exercise and Graduated Labour.

This question may be considered here, since it has been suggested that some of the benefit of this mode of treatment is due to the effect it has upon the immunity processes by producing controlled auto-inoculation. The usual forms of exercise prescribed at sanatoria are walking and certain games. At all of them the walks can be graduated in length and at many of them also in the matter of level. Dr. Paterson's scheme of graduated labour, first introduced at Frimley and still followed there, was a useful advance. It had the great advantages that it employed the arms, gave interest and encouragement to the patients, and in

[2] Tubercle, 1921–2, ii., 25: also Intern. Centralblatt für die gesamte Tub. Forschung, 1920, 14.
[3] British Journal of Experimental Pathology, 1923, iv. 46.
[4] THE LANCET, 1923, i., 66.
[5] Ve Congrès National de la Tuberculose, Strasbourg, June 2nd–6th, 1923.

some cases served to prepare them better for return to work. The grades of labour are started when the patient has been able to walk up to six miles or more a day. The early grades consist of very light work with periods of rest, such as walking uphill, carrying small baskets, digging with a toy spade, and weeding. It is gradually increased to heavy work with a spade or pick. It cannot be too strongly insisted upon that this method of treatment requires most careful daily observation of the patient on the part of the doctor, and the strictest coöperation on the part of the patient. Over-exercise may be as dangerous as over-dosage with tuberculin, and may lead to active spread and prolonged fever. On the other hand, a small auto-inoculation may have beneficial results if it is at once recognised and the patient put to rest. Malaise, headache, pain, and increased cough or expectoration are subjective symptoms which should at once attract attention and suggest over-exercise, and this may be confirmed by rise of temperature, rapid pulse, and even by altered physical signs. Paterson recommends that if the resting temperature rises above 99° F. in men or 99·6° F. in women, they should at once be put to bed, especially if any of the indications just mentioned are also present. In spite of the criticisms recently directed to this method, I am convinced of its great value in suitable cases, if adequate care and judgment are used in its application.

Other Forms of Exercise.—Golf is often prescribed, allowing at first only a limited swing. In my opinion it is wiser not to allow golf until arrest is complete. Croquet and clock golf are permissible. When the disease is quiescent and the patient is able to take long walks, gentle horse-riding may be permissible. Care should be exercised in regard to games, not only because it is difficult to graduate the amount of exercise taken, but also because of the factors of competition and excitement, which are undesirable. In regard to cycling, rowing, and swimming, special caution is necessary and we should be sure that arrest is complete before permitting them.

CHEMOTHERAPY.

Attempts to find drugs which will have an action upon the tubercle bacillus comparable to that of salvarsan on the spirochæte of syphilis have not been successful. This is not surprising when we remember the resistant fatty and waxy envelope of the bacillus and the avascular character of the tubercles. At the same time, it can be proved that some drugs actually reach the bacillus in the lesions and the search for a true specific is still worth pursuing. Specific chemotherapy in the true Ehrlich sense is therefore as yet lacking, and we must content ourselves with examining whether there is any evidence that any of the so-called "false specifics" exert any direct or indirect beneficial effect upon patients suffering with the disease—in other words, drug therapy rather than chemotherapy.

The Antiseptic Group.

Creosote and Its Derivatives.—Creosote was first suggested in this disease by Reichenbach as long ago as 1830. The experimental evidence of its value is not very convincing. It has only a weak action in inhibiting the growth of the tubercle bacillus, and it has no specific action on this organism, nor does it seem to exert any beneficial influence upon guinea-pigs infected with tubercle. The chief evidence of its usefulness is clinical, and it is significant that whereas it was formerly employed almost as a routine treatment, its use is now more restricted. It seems to be of value in cases of chronic fibroid disease with copious expectoration, in patients with a secondary infection or with chronic bronchitis, and in some early cases with dyspepsia and intestinal fermentation. When given in too large doses, or for too long a period, it may disturb digestion, causing pain, discomfort, and eructations, and it may produce hæmoptysis. According to Dr. Fishberg, it may lead to symptoms comparable to a tuberculin reaction from its effect upon the focal lesions during excretion by the bronchi. It is important that a pure beechwood creosote should be employed. It is best given in capsules or perles, starting with 2 minims after food three times a day, increasing gradually up to 6 minims. It is sometimes given with syrup or balsams, but its hot unpleasant taste renders it disagreeable to most patients. It should not be persisted in if it causes any discomfort or any unpleasant symptoms. The numerous derivatives and compounds of creosote, such as guaiacol (1–3 minims), guaiacol carbonate (10–30 gr.), creosotal (creosote carbonate) 5–10 minims, guaiacol cinnamate (styracol) 5–15 gr., potassium guaiacol sulphonate (thiocol) 5–15 gr., have the same indications and the same actions as creosote. They differ chiefly from it in cost and in taste.

Ichthyol.—Ichthyol (2–5 minims three times a day before meals in milk or water), and its derivatives ichthoform, ichthyol salicylate, and ichthalbin, has been recommended for the same types of cases as creosote and on similar evidence. It is apparently non-toxic and less irritating than creosote. Other antiseptics which have been suggested are phenol, cyllin, and urotropin. The evidence of their value, except as acting on bacteria in the digestive and urinary tracts, is slender.

Iodine.—Iodine requires more detailed consideration if for no other reason than the fact that it has been used so long empirically as a remedy in this disease. The experimental study of its action lends no support to the view that it exerts any specific effect upon the bacillus. It can be shown to reach the tubercles, and it is said to increase lymphocytosis. It also increases the bronchial secretion, and it may induce changes in tuberculous lesions comparable to those produced by tuberculin. It should, therefore, not be used as a routine, or indiscriminately. I have used it considerably and I think with benefit, chiefly in cases of the chronic fibroid type with associated chronic bronchitis, and in some of more active type with slight persistent fever. It is best given as the weak tincture in milk after meals, beginning with one drop and increasing slowly up to 20 drops or more. It should be stopped if it causes any unpleasant symptoms, either as regards the lungs or the digestive system. Curle's "nascent" or intensive iodine treatment may be tried, but is, I think, more likely to disturb digestion. Thirty grains of potassium iodide are given after breakfast in at least half a pint of water to which some potassium bicarbonate may also be added. Chlorine water flavoured with lemonade is given during the day up to 3 to 5 oz.

Dye-treatments.—Various dyes, including methylene-blue, have been used experimentally in animals, owing to the brilliant results obtained by their use in some parasitic infections. An interesting observation[6] has emerged from this work, since it appears that fat-soluble dyes do not easily penetrate tubercle bacilli, while some water-soluble dyes like methylene-blue do so, and that the bacilli are less susceptible to fat-soluble antiseptics, and more susceptible to water-soluble than bacteria with less fat. There is not at present enough evidence of the value of dye-treatment to suggest its use in man.

Cod-liver Oil and Sodium Morrhuate.—Cod-liver oil has long been credited with a beneficial action in this disease, and large quantities, even up to 4 oz. a day, have been given by some French physicians. In this country smaller quantities are usually employed, and it is often given in emulsion or in association with iron or with hypophosphites. Its effects have been variously attributed to its nutritive value, to its vitamin content, and to a possible specific effect upon the bacillus. Sir Leonard Rogers, stimulated by the effects of chaulmoogra oil and the non-saturated fatty acids obtainable from it in leprosy, prepared from cod-liver oil a substance, sodium morrhuate, for use in the treatment of tuberculous disease. It has been shown that chaulmoogra oil contains chaulmoogric and hypnocarpic acids, which are 100 times more bactericidal for the acid-fast bacilli than phenol. Sodium morrhuate has been employed in the treatment of pulmonary tuberculosis, and good results have been put on record by Muir, Knowles, and Davies. Febrile reactions may occur after its use, and occasionally slight hæmoptysis. It is suggested that the effects are comparable to those of tuberculin, and that the bacilli found in sputum after its use show deficient staining and a granular appearance. It is best given hypodermically in the form of a 3 per cent. watery solution, to which half per cent. carbolic acid is added. Small doses should be given two or three times a week, at first 0·1 c.cm. to 0·5 c.cm., increasing up to 1·5 c.cm., watching carefully for reactions. I have used this substance in a few cases, in some with apparent benefit. Sir Leonard Rogers has himself counselled caution in its use, and further trial of its effects both in animals and in man are necessary before its value can be finally assured.

Gomenol.—Gomenol, a distillate from *Melaleuca viridiflora*, has been used in France. It is given subcutaneously in 10 per cent. solution in oil, gradually increasing from 2 c.cm. up to 10 c.cm., and even 50 c.cm. It is given daily for several doses, then a few days' interval is allowed and a further series is given.

[6] De Witt and Sherman: Journal Infect. Dis., 1914, xv., 245.

Pneumosan.—Pneumosan (amyl-thio-trimethylamine), in doses of 4 to 10 minims intramuscularly, had a vogue for a time, but is now rarely used in this country.

Garlic.—Garlic and allyl compounds were recommended years ago by Dr. Vivian Poore, and have been employed again recently. Their action seems comparable to that of the creosote series, and there is no evidence of any specific action.

Hypophosphites and Glycerophosphates.—These have been recommended as general "tonics" in this disease, and are frequently given in combination with certain metals on the basis of the remineralisation theory to which I shall refer later.

Cinnamates.—Landerer recommended cinnamic acid and its salts in the disease. He claimed that it increased leucocytes. Cinnamate of soda is the form which has been used chiefly. Good results have been recorded by various French and Spanish physicians. It is given subcutaneously in doses up to 10 cg. It is now stated to have a hæmolytic action and therefore not recommended.

Metallic and Mineral Substances.—Arsenic seems to have been used in this disease from Greek and Roman times. There is no evidence of any direct action upon the bacilli or the diseased tissues. Any action it possesses in this disease is probably due to its effects upon metabolism. It should be used with care and not as a routine. It may be given as arsenious acid in pill, sodium arseniate, liquor arsenicalis, arrhenal, or cacodylate of soda. The last named is a convenient form. It is given by hypodermic injection in doses of $\frac{1}{4}$ to $\frac{1}{2}$ gr. daily or every other day for about a fortnight, then an interval is allowed and then other courses are given in succession. Salvarsan has also been given with benefit in cases of syphilitics with pulmonary tuberculosis. It is not devoid of risk in other patients.

Mercury Salts.—Mercury succinimide has been recommended by Barton Wright in doses of 1/5th gr. in 10 minims of water given hypodermically every other day till 30 doses have been given. It is said to be specially useful in syphilitic patients. Recent experimental work in animals by De Witt seems to show that mercury compounds exert a favourable action on the disease, and suggest the need for further work on this subject.

Calcium Salts.—Certain French authorities, notably MM. Ferrier and Robin, have attached great importance to a supposed demineralisation in tuberculosis. Calcium salts have been repeatedly used in the treatment of this disease, partly because of the calcification which occurs as one method of cure, and partly because of the legend that those who work in lime dust do not contract the disease. Robin maintained that tuberculosis was associated with an increase, and an alteration of the respiratory exchanges and a demineralisation of the body. He gave fresh bone powder with carbonate of magnesium and of calcium, together with lactose and fluoride and silicate of calcium. Recent work has not confirmed Robin's views, though calcium, especially in the form of collosol calcium, has been used by Prest and others. Considerable claims have been made by Prest as to its value, but some other observers have not been so fortunate. It has the merit of being harmless, except in very large doses. Recently G. Hartwick-Borrman reports favourably of a trial in 600 cases of a comparatively salt-free diet with a teaspoonful before breakfast of a solution of 30 parts of calcium chloride, 60 parts of potassium acetate in 285 parts of water. It should be given in a glassful of warm water, but should be withheld if renal complications are present.

Silica.—Since silica is found in all tissues and more abundantly in connective tissue, silica preparations have been recommended in the hope that they would induce fibrosis. There seems very little evidence, either experimental or clinical of its value.

Colloidal Metals.—Other metals in colloidal form have been recommended in this disease, notably silver, gold, copper, and brass. Although good results have been recorded from some of them, there is little real evidence of their beneficial action.

Organotherapy.—Various organic extracts have from time to time been suggested, including extracts of lung tissue, lymphatic glands, both tuberculous and normal, spleen, and pituitary. Muscle extract or meat juice has also been employed. The fact that most, if not all, of these have been discarded is the best evidence that they are of no real value.

Treatment by Inhalation and by Intra-tracheal Medication.

Inhalations have been used since very early times. They were recommended for laryngeal cases especially by Dr. Coghill and Dr. Burney Yeo, who introduced convenient forms of oro-nasal respirators for the purpose.

Dr. D. B. Lees recommended more or less continuous inhalations, and claimed to have seen cures by this method. He used phenol 2 parts, creosote 2 parts, spirits of chloroform 2 parts, spirits of ether 1 part, and tincture of iodine 1 part. This sometimes causes irritation of the air passages and even slight hæmoptysis, and I have found the formula in use at the Brompton Hospital preferable—viz., menthol 1 parts, oil of cinnamon 3 parts, oil of lemon 4 parts, creosote 20 parts, oil of pine 10 parts, and spirits of chloroform 10 parts. Five to eight drops of this per hour are put on the sponge of the respirator. Although some patients complain of discomfort and difficulty in breathing from the use of a respirator, I have found that the majority find it helpful in lessening cough and expectoration. It is specially useful in laryngeal cases. Kuhn's mask was introduced in 1906. It was devised to induce passive venous congestion of the lung on Bier's principle. It seems to have followed many other ingenious treatments, based on theoretical considerations, into the limbo of the disused. Intratracheal injections have been employed, that most favoured being a mixture of menthol, olive oil, and guaiacol. It is chiefly of use in cases with bronchiectasis, or with offensive sputum, a strikingly uncommon event in this disease.

PHYSICAL METHODS OF TREATMENT.

Heliotherapy.—The striking success of the sun cure of Rollier in surgical tuberculosis has naturally directed attention to its use in the pulmonary forms of the disease.

Rollier admits that great care is necessary in its application in these, but claims that in suitable cases it can be of great value. He suggests that on the first day the feet only should be exposed for two or three minutes, and that the rest of the body should be gradually acclimatised to the sun's rays before the chest is exposed. He also advises that in hot weather, exposure should be limited to the early morning sun. It is generally allowed that if the skin does not pigment after exposure to the sun's rays, the treatment should be stopped. Although some observers have recorded good results from heliotherapy, especially in children, the majority advise against it. It seems not infrequently to cause a rise of temperature, hæmoptysis, and other manifestations of auto-inoculation. It is possible, as has been suggested, that different types of pulmonary disease react in different ways. No case with fever should be submitted to this form of treatment.

Artificial Sunlight.—Exposure to the rays from the quartz lamp has been tried, but unpleasant effects like those from sun treatment, seem to occur not infrequently in pulmonary cases. Ultra-violet rays have also been employed on the supposition that the beneficial effects of sunlight are due to them.

X Ray Treatment.—This has been tried more especially in glandular tuberculosis, including disease of the bronchial glands. It is often employed as an addition to other forms of treatment, as e.g., by Much, in association with his partigens.

Bacmeister and Kupferle have claimed that radiotherapy can assist in the cicatrisation of tuberculous lesion without destroying the bacilli. They regard it as useless in acute caseous and rapidly developing lesions. The chest is mapped out into areas and carefully measured doses are given. Most observers agree that the tubercle bacillus is not sensitive to the X rays, and that the effects obtained are due either to the changes induced in the tissues irradiated, or to reactive processes produced in the hæmopoietic organs. The chief exponent of the latter view is Manoukhin.[2] He gives regulated doses of X rays of a definite strength and hardness, filtered through 1 mm. of aluminium and applied to the spleen exclusively from the front and back, not from the side, and in such a way that no rays reach the liver. He believes that the beneficial results are due to the leucocytolysis induced, and maintains that the curve of the specific antibodies follows that of the destruction of the white corpuscles. In the first stage of the disease he gives eight to ten applications, in the second 12 to 15, and in the third stage two series of 12 to 15, with an interval of two or three months between them. Trémolieres and Columbian have recorded good results by a similar process, but in addition they apply the rays to some of the long bones. They explain the action of the rays in a different way to Manoukhin, who criticises their technique and their views. These methods seem at least to be worth a cautious trial.

[2] THE LANCET, 1921, i., 685; and Presse Médicale, July 18th, 1923.

It must be confessed that some, if not all, of the much vaunted remedies I have mentioned make but a sorry display when examined critically and experimentally, while most of them fail us in the cases in which we most need help—namely, in those with active progressive disease with fever not controlled by absolute rest. At the same time, a very little may sometimes turn the scale, and provided we are convinced that a treatment does not entail risks, it may be well to give it a careful trial, if only for the encouragement it affords to the patient and the opportunity it allows to the practitioner of giving regular supervision to the details of the patient's daily routine. There is much to be said for the suggestion of M. L. Renon that we should utilise the "normal coefficient of improvement" by employing in sequence various forms of treatment for short periods.

SYMPTOMATIC AND PALLIATIVE TREATMENTS.

In a disease which may take such a long and varied course and in which such distressing symptoms and complications, often harmful in themselves, are liable to occur, palliative treatment may be of the greatest value. Few cases require more skill and resource in treatment than one of chronic progressive pulmonary tuberculosis. We may now consider the treatment of some of these symptoms and complications.

Cough.—An ineffective cough is unnecessary and harmful, and it should be checked. This can often be done by instructing the patient as to the risks of such a cough, and teaching him to restrain it as insisted on by Dettweiler and others. Where it is due to some source of irritation, such as pharyngitis, granular pharynx, some nasal condition or irritation of the base of the tongue, these should be dealt with by appropriate means. Mandl's iodine-glycerine pigment is useful, or some form of sedative or antiseptic spray or nebula. A laryngeal cough is often troublesome, painful, and associated with copious frothy expectoration. Antiseptic inhalations and rest to the voice often help in this case. Simple demulcent lozenges or domestic remedies may be given, care being taken to avoid anything likely to disturb digestion. The sputum accumulated during the night may be viscid and cause sickness after cough, which is commoner in left-sided cases. A cup of hot milk and water or weak tea often relieves this. If this fails a mixture containing 10 gr. of sodium bicarbonate, 3 gr. of sodium chloride, spirits of chloroform 5 to 10 minims, and water to the ounce often gives relief, especially if given with hot water. For nocturnal cough disturbing the patient's rest, some form of sedative is frequently necessary for a time, and of these heroin 1/24–1/12 gr. in a simple linctus, syrup of codein, or collosol bromoform are the most useful. An effective cough should not otherwise be interfered with. When expectoration is copious creosote or some of its derivatives may sometimes be helpful, especially if there is a factor of chronic bronchitis. If expectoration is offensive, antiseptic inhalations may be ordered and creosote or garlic given internally.

Dyspnœa.—This may be due to the extent of lung involved, to mechanical conditions such as pleural effusion, or in the late stages to cardiac enfeeblement. In chronic fibroid cases dyspnœa is often more marked in cold, wintry weather. Rest is often of great value in such cases. If there is a mechanical cause for the dyspnœa, such as an effusion, rest, and if necessary paracentesis, may give relief. Dyspnœa due to extent of lesion and to heart failure is usually terminal, and can only be palliated by rest, oxygen, and cardiac tonics.

Fever.—The treatment of fever is in the first instance absolute rest, in the hope of limiting and eventually controlling auto-inoculations. Where rest fails it is necessary to consider other measures, such as change of room, living and sleeping in a shelter so as to get more air may be tried. Careful hydrotherapy in the form of sponging or packs may help to relieve the discomforts associated with it, but not to deal with the cause. Similarly antipyretic drugs are purely palliative in their effects, and should be avoided if possible. Those chiefly employed are phenacetin, antipyrin, aspirin, quinine, cryogenin, and maretin. The sweating associated with their action as a rule brings nearly as much discomfort as the actual fever. I very rarely use them. When fever persists in spite of rest it is usually wise to consider whether artificial pneumothorax should be tried.

Night Sweating.—These are much less common since the importance of fresh air and free ventilation have been recognised. Rufenacht Walters says "they are nearly always a sign of hygienic mismanagement." This statement is, perhaps, a little too sweeping. When they occur, careful inquiry should be made as to the ventilation of the bedroom, the character of the mattress, and the amount of bed-clothes. Sometimes it is also helpful to sponge the patient before settling him down for the night with hot or tepid water, to which toilet vinegar has been added, and to have a second suit of night clothes ready warmed to put on after the patient has been dried. Paterson[a] recommends placing a grass mat over the mattress and under the sheet on which the patient lies, or else sleeping on canvas without a mattress in cases where the measures first recommended fail. Various drugs were formerly given to relieve this symptom, notably zinc oxide, belladonna, atropine, strychnine, picrotoxin, and agaricin. They are now rarely used, since in most cases they are unnecessary, and our object is to avoid this symptom, not to mask it.

Hæmoptysis.—If there is only streaking of the sputum no treatment is necessary. If it be small in amount—e.g., 2 or 3 oz., rest, some saline aperient, and a dose of bromide to allay the patient's fears may be all that is necessary. In more severe hæmorrhage the patient should be put to bed, lying on his back or towards the affected side, and if it be very profuse he should lie with the head low so that suffocation may be prevented by allowing the rush of blood to escape. The tendency nowadays is to keep the patient less strictly quiet, owing to the observations of Bang that movement has little to do with hæmoptysis, and morphine is less commonly used as a routine treatment on the ground that it lessens cough and tends to cause the effused blood to remain in the lungs and to spread the disease more widely. In a very nervous patient a small dose of morphine, heroin, or codein may, however, do good by allaying anxiety, lessening restlessness, and thus slowing the heart-beat. Nitrite of amyl, 3–5 minims, as an inhalation is worth a trial. Calcium lactate or calcium chloride, 10 gr. in water by the mouth every two to four hours for four doses and then three times a day for two or three days, seems sometimes to be helpful. Calcium chloride can also be given intravenously in doses of 2 c.cm. of a 15 per cent. solution. It has also been given intramuscularly, but for this purpose it requires greater dilution. Where these measures fail, sterile horse serum, "coagulose," and hæmostatic serum may be tried. In cases where repeated small leaks occur, daily hypodermic injections of emetine hydrochloride, ¼ gr., may be used. A dose of 5 to 15 gr. of salt by the mouth is said to increase coagulability. A saline purge, preferably sodium sulphate, should be given unless the bowels are freely open. Turpentine has been recommended, and Dr. Jane Walker advises inhalation of this substance at the commencement of the hæmorrhage. The application of ice to the chest is better avoided and the sucking of ice should be restricted to a small amount. Adrenalin and ergot, formerly used by some physicians, should not be employed. The diet should not be greatly restricted, but the food should be given cool, and no alcohol should be permitted. In cases with prolonged or frequently repeated severe hæmoptysis, artificial pneumothorax must be considered, but it requires great care if it be decided to do it while the hæmorrhage is in progress.

Pain.—Pain in the active stages of the disease is usually due to pleurisy. It should be treated by rest and local application of counter-irritants or anodynes, such as blisters, an iodine paint, wintergreen ointment, or belladonna. Strapping the affected side is sometimes recommended, but may cause dyspnœa. In arresting cases pain is sometimes present without pleural signs, and may be due to contraction of pleural adhesions. It may be treated on similar lines.

Digestive System.—Symptoms due to disturbances of digestion are very common. Anorexia is often troublesome, and requires very careful treatment, such as changes in diet and in routine. Dyspeptic symptoms should be investigated and treated on recognised lines by acids or alkalies, bitters and ferments such as takadiastase, malt extracts, pepsin, or papain. Hypochlorhydria is said to occur, and may be a cause of diarrhœa. Dilute hydrochloric acid may then be given in doses of 10 to 30 mnims. Dyspepsia may be due to excess of milk or other fatty foods, or to monotony of diet. Diarrhœa may occur apart from tuberculous enteritis, and should be treated by avoiding foods with coarse residues and by giving bismuth, chalk, opium, tannic acid preparations, and salol or other intestinal antiseptics. Constipation requires treatment, especially during the period of rest in bed. It can usually be controlled by diet and by simple laxatives.

Insomnia may be due to too much sleep in the daytime, which can often be obviated by the patient occupying a different bed or room during the day to that used at night. It may be due to cough, pain, or diarrhœa, which should be treated by the appropriate measures. Hypnotics should only be given if other measures fail.

[a] THE LANCET, 1922, ii., 725.

MANAGEMENT OF ADVANCED CASES.

Advanced cases require special care, and where possible they should be treated in special institutions or in nursing homes. Their management is largely a question of nursing, and the treatment of symptoms and complications. Unfortunately they are the most difficult cases to find accommodation for. They are certainly unsuitable for treatment at home in small homes because it is difficult to secure adequate precautions as to infection and to afford proper nursing, food, and treatment. On the other hand, such patients are often averse to leaving home, even when special accommodation is available for them. The duty of the practitioner in charge of such a case at home is a responsible one, because he should be sure that all precautions are taken, and that young children do not come in any contact with the patient. He must also give advice in regard to the disinfection of the linen and utensils used by the patient.

The complications of this disease are numerous and require special treatment and nursing. Among the more important of these are: Tuberculous laryngitis, enteritis, spontaneous pneumothorax, pleurisy with effusion, empyema, peritonitis, and meningitis.

AFTER-CARE, COLONIES, SETTLEMENTS, AND VOCATIONAL TRAINING.

These are all aspects of the tuberculosis problem which are being dealt with by the Ministry of Health, either directly or by the aid of voluntary and charitable agencies. One of the great difficulties in the management of these cases is to map out the best course for the patient when he leaves the sanatorium, especially when he is not able to remain until arrest is complete and consolidated. To return to work under these circumstances and under the conditions which preceded breakdown is generally to court disaster; often in a very short space of time. On the other hand, it is now recognised that to advise a town worker to seek an outdoor or country occupation is usually impracticable and uneconomic. If possible he should return to his former work under better conditions and with a better knowledge of how to live and work, unless that occupation is obviously unsuitable or dangerous. The difficulty is the period between active treatment and full working capacity; when the patient may be able to do some work and yet not able to earn enough to support himself, let alone his family. It is to deal with this aspect of the problem that after-care committees are being encouraged, and that colonies and settlements are being established. The work of Dr. P. C. Varrier-Jones at Papworth Colony is recognised as a pioneer effort of the utmost importance, and Sir James Kingston Fowler, in his interesting and suggestive little book on the Problems of Tuberculosis, accords him a high meed of praise and admiration. This book also includes a suggested scheme for the further organisation and coördination of institutions from the sanatorium to the settlement. The Ministry of Health are dealing with this question in a sympathetic spirit, but it must not be forgotten that there are great difficulties—financial, administrative, and practical. The training of men to new work, their relation to the labour market and to the trade-unions, and the disposal of the products of their labour are all matters requiring organisation and adjustment.

The general practitioner and the physician are also concerned in this question, since they often have to advise patients for whom no such arrangements are forthcoming. The day is past when we can talk vaguely of farming, forestry, market gardening, and chicken rearing as the occupation for arrested lung patients. We have to advise them how they can best earn enough to support themselves under conditions favourable to the maintenance of their health when arrest has been attained. We may have to inquire closely into the nature and conditions of the occupations of our patients, and to advise after a careful consideration of all the circumstances.

From the Royal School of Medicine, Cairo.

BILHARZIAL PAPILLOMATOSIS OF THE RECTUM.

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THE incidence of bilharziasis, from which disease it is estimated that at least 75 per cent. of the Egyptian population have at one time or another suffered, varies in the different districts of Upper and Lower Egypt. The reason for this is at present obscure; it may be the change from the basin or flood irrigation of Upper Egypt to the perennial irrigation of Lower Egypt, or the nature of the intermediate host of the parasite, that is responsible. The type of bilharzia, with terminal spined ova, affecting the urinary system from Upper Egypt, seems to be associated with a less severe type of disease—disease of the bladder, ureters, and renal pelvis in particular—than in the perennial irrigation areas of Lower Egypt. There are regions in the Delta also where simple affections of the bladder alone are most common, and other regions, again, where disease of the ureters and renal pelvis is the rule.

Various Types of Disease.

The district of the Fayoum, one of the oases of the western Desert, is, however, particularly associated with the development of intestinal bilharziasis (*B. mansoni*—the lateral spined ova). The chief seat of this disease is in the rectum, and it is characterised by the formation of numerous papillomata of sizes varying from an orange to a pea. A typical appearance is shown in the appended figure. The lateral spined ova are found within the papillomata themselves and in the submucous layer of the bowel. Bilharziasis of the colon as a whole exists in four types: (1) a simple congestive thickening of the mucous membrane; (2) congestive thickening with papillomata; (3) tumour masses in and around the colon or small intestine with or without local papillomata, and sometimes associated with deposits studded throughout the peritoneum and mesentery (Madden and Ferguson).[1] Polypi of the cæcum are not uncommonly the cause of chronic intussusception, in which the apex of the invaginating bowel is formed by the polypus itself. Ferguson describes a stricture of the large bowel produced by an adult worm encircling the gut and depositing its eggs around the lumen.

Treatment.

The symptoms of rectal bilharziasis are constant tenesmus, with the passage of blood and mucus, whereby the patients are condemned to a life of utter misery, progressive anæmia, and emaciation. Treatment by tartar emetic is successful in destroying the living ova, but the papillomata and the consequent symptoms continue. Local operative procedure by removal of the isolated papillomata by the knife or diathermy is unsuccessful. The papillomata always recur. Injections of carbolic acid 1–20, or various chemical agents, into the bases of the papillomata are equally unsuccessful. The only complete, thorough and permanent cure is obtained by the excision of the whole tube of mucous membrane of the rectum. This has been performed eight times by us, six times by one of us (I. F.), and twice by the other (R. V. D.). The astonishing ease with which the whole unbroken tube of mucous membrane can be excised is most remarkable. Lengths of 12, 15, and 17 in. have been removed by one of us (I. F.),

[1] Madden, F. C.: Surgery of Egypt.

and lengths of 14½ and 9 in. by the other (R. V. D.). A circular incision is made at the junction of skin and anal mucous membrane. Blunt dissection separates the external sphincter muscle without division of its fibres. Two inches of the tube of anal mucous membrane are then easily withdrawn, and the opening of this tube closed by forceps. The attachment of the levator ani forms the next and only other difficulty. When once this muscle is separated by blunt dissection the mucous tube may be loosened by the gloved finger and withdrawn with the greatest ease until the upper limit of the papillomata has been reached.

This operation was first practised by one of us (I. F.) in 1919 and described in a preliminary note.[2] The operation was conceived as a cure for simple prolapse of the rectum when a more complete examination revealed papillomata in the rectum higher up. The presence of the prolapse facilitated

Congestive thickening of rectum with papillomata.
A = Anal margin.

the dissection of the mucous tube. The succeeding seven cases had no prolapse. Two of the cases operated on by one of us (I. F.) were children of 10 and 12 years; the results were even more satisfactory than in the adults.

In the majority of cases the papillomata are limited to the rectum proper and the sigmoid colon is free. The mucous tube is withdrawn—2 in. or so further than the limit of the papillomata, to ensure that there shall be no tension on the tube—and excised, and the edges are then sutured to the margin of the skin and external sphincter muscle.

Recovery is usually uneventful. There is little tendency to retraction of this tube provided that precautions have been taken to avoid tension. Healing takes place as a rule with only a ring of granulations at the anal margin. Control of the anal outlet by the external sphincter muscle is regained in a week. Healing by first intention should not be expected; and dilatation of the sphincter should be practised early to avoid a stricture.

Anatomical Results.

Pathological examination of the mucous tube removed shows that it is entirely composed of mucous and submucous tissue. The muscular coat of the rectum is not removed by this operation. No opportunities have occurred as yet for examination of such cases by autopsy. An operation, however, upon the cadaver performed by one of our colleagues, Mr. A. W. Mooro, disclosed the fact that the sigmoid-rectal junction is brought down close to the anal orifice. On opening the abdomen the rectum was "concertinaed" but there was no intussusception. The musculo-peritoneal tube was very thin. The mucous tube, 15 in. in this case, had been removed from 9 in. of the rectum; thus 6 in. of the mucous tube had been removed at the expense of the redundant folds of rectal mucous membrane. Subsequent examination of our cases with a sigmoidoscope shows a straight tube of mucous membrane without any folds.

Selection of Cases.

A note of warning in the selection of cases for operation should be sounded. The operation is accompanied by some shock, and sometimes by considerable hæmorrhage during the separation of the levator ani attachments. We provide ourselves with long artery forceps, and never operate upon severely anæmic patients, particularly those with a hæmoglobin index of 45 per cent. or under. In the very anæmic and debilitated we have performed a preliminary blood transfusion to restore the hæmoglobin. The operation in Egypt is best performed under stovaine anæsthesia; but some discomfort is complained of when the root of the sigmoid mesentery is pulled upon during the removal of the last inch or two of the mucous tube.

While seven of these cases have been perfectly successful it must be recorded that, in the first case of this series, there was such tension left upon the mucous tube that the sutures gave way and retraction of the tube took place to the extent of 3 in. An intractable stricture developed which necessitated the weekly use of a dilator. The subsequent state of this patient is, however, infinitely to be preferred to the previous condition of tenesmus and progressive anæmia which had rendered his life an utter misery.

In the cases where the papillomatous condition can be seen by the sigmoidoscope extending up to the descending colon, the removal of the rectal portion of mucous membrane, always the most markedly affected region, is sufficient to relieve the urgent symptoms. Isolated bilharzial polypi of the descending colon, the splenic flexure, and the transverse colon may exist with no symptoms but those of a mild chronic diarrhœa.

[2] Fahmy, I.: Proceedings of the Egyptian Medical Society, June, 1920.

A NOTE ON
POST-OPERATIVE INSANITY.

BY A. J. COKKINIS, M.B., B.S. LOND., F.R.C.S. ENG.

IN view of the recent discussion at the Royal Society of Medicine on post-operative and puerperal insanity,[1] I feel impelled to make this clinical contribution in the hope of elucidating one or two points in a condition which is obscure and often puzzling. I have a case of post-operative insanity under my care now, and as this contribution is largely based on this case I propose to describe it at length.

The patient is a married woman, aged 60, of good social position and in comfortable circumstances. Prior to the

[1] THE LANCET, Jan. 19th, 1924, p. 129.

operation she had never exhibited the slightest sign of mental instability, but possessed, on the contrary, a particularly steady and reliable intellect. Although she was one of a numerous family, there have been no cases of mental trouble among her relations. She had an abdominal operation ten years ago from which her recovery was uneventful.

Operation.—In October, 1923, her nasal septum was resected under a general anæsthetic. She took the anæsthetic badly, her circulation failed, and at one stage artificial respiration had to be resorted to. She did not recover consciousness for over 24 hours, the immediate post-operative condition being one of profound coma.

Onset of Confusional Insanity.—She then gradually recovered consciousness, but passed on to a condition of acute confusional insanity, without the intervention of a lucid interval. She was noisy, rather violent, did not recognise her husband or her children, had completely lost her memory, and was extremely confused and agitated.

Development of Chronic Dementia.—The acute condition lasted three days and she then passed, by a rather sudden transition, to a state of chronic paranoic dementia, in which she has remained for three months. Her present mental condition can be best described as a complete dissociation of ideas. She has rare intervals of comparative lucidity, during which she seems fairly rational, provided the conversation is kept at a very simple level; at all other times she is totally irrational.

Delusions.—She is full of the most extraordinary delusions, which change and swing about like the pattern of a kaleidoscope. Thus, one moment she attributes her condition to a dog-bite, the next to a cat-bite (!), and the next to worms eating into her wrists. Within two minutes her Christmas dinner passes through the phases of turkey, rabbit, beef, lamb, chicken, ham, and other things. In the same sentence she gives the date of her birth as 1891 and 1999, and she has completely lost the ability to do the simplest arithmetical sums. Her daughter is her sister and her sister is her daughter; she is pregnant at one visit, burying her baby at the next, and so on. Her delusions are seldom systematised, but her entire mental life is strung on delusions, which vary from one minute to the next, and to explain which she invents other and more extravagant delusions. Her sensation and perception are good, but memory she has none. Neurological examination reveals nothing abnormal and her general health is very good.

Quite recently I had the benefit of seeing the patient in consultation with Dr. R. H. Cole. He expressed the opinion that the case was as unique as it was instructive, and that it could not be explained away as an instance of a purely functional psychosis following operation. The clinical picture and the absence of a family or pre-operative personal mental history, coupled with the sudden onset of mental trouble immediately after operation, point to an organic basis for the mental disorder.

The clinical condition strongly suggests a definite interruption of idea-association impulses, such as might take place as a result of minute focal hæmorrhages or thromboses destroying certain association fibres in what are known as the silent areas of the brain. This ætiological hypothesis is strengthened by the possibility of vascular trauma in the cardiac and respiratory trouble experienced during the anæsthesia, and by the prolonged period of coma after the operation.

Such an ætiological hypothesis appears worthy of consideration in certain cases of post-operative or post-traumatic insanity, where gross brain injury and psychical or toxic causes are absent, and where the mental trouble asserts itself immediately after the operation or injury. Should the foci of vascular lesions implicate the comparatively small section of brain matter of neurological importance (motor area, visual centre, &c.) this would be demonstrated by a neurological examination. But in that great field of brain matter known as "association areas" a lesion is incapable of neurological proof, and we are perhaps too prone to make use of purely functional arguments in attempting to explain the ætiology of traumatic or post-operative insanity which is not associated with physical signs of nervous injury.

I am greatly indebted to Dr. Cole for his help in solving the problem presented by this case, and for his kind permission to publish it.

Ilford, Essex.

A SIMPLE METHOD OF PREPARING HANDS AND GLOVES FOR OPERATION.*

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PART I.—(G. W. T.).

OWING to the very wide variations in the directions given by the different authorities as to how the hands should be prepared for surgical operations an attempt has been made to formulate a safe and simple method The object of this paper is to contend (1) that rubber gloves may be easily sterilised without resort to heat; (2) that it is illogical and unnecessary to wash socially clean hands before operating; (3) to advocate the doctrine of "abstention."

Gloves are usually sterilised by boiling or the autoclave. The boiling of gloves is quite satisfactory and easily carried out, but it slowly destroys the elasticity of the glove, so that it soon ceases to fit. When a puncture occurs in such a glove a definite hole results, which allows of the escape of fluid. If the gloves have been put on out of antiseptic the fluid which escapes at first will be harmless. But antiseptic in contact with the skin soon gets destroyed, and the puncture permits the escape of an emulsion of bacteria. The second method necessitates the use of an autoclave, and is only available to those on the staff of a hospital. So hard is the steam on the gloves that they perish after being used three or four times. These gloves lose their elasticity after being sterilised once, and an ordinary needle-prick then makes a considerable hole.

As a result of frequent experiment we claim that however a smooth rubber glove be contaminated it can always be made sterile by a simple washing with soap and water, followed by a thorough rinsing in antiseptic. The gloves should always be treated on the hands and fit well. They should be washed for one minute with soap and water, rinsed in water, and then rubbed well together in a 1-1000 solution of biniodide of mercury. If dried blood, vernix caseosa, or similar material is on the gloves they should be scrubbed with an ordinary scrub brush till clean, rinsed, and treated with antiseptic. A glove so treated retains its elasticity for two months or more, so that an ordinary needle puncture is so small that it is only with difficulty that fluid can be squeezed through it. It is perfectly obvious that if it could be guaranteed that the glove would not be punctured it would not matter how dirty the hands underneath were. Unfortunately no such guarantee can be given, and it is therefore necessary to define the minimal safe procedure for preparing the hands.

The only logical reason for scrubbing the hands is based on the assumption that the organisms on the surface of the hand are different from those in the glands and are more dangerous. Clearly they consist of three groups: (1) those from the air, which are assumed to be harmless; (2) those picked up when touching surrounding objects; (3) those from the ducts. It is those in the second group that are potentially dangerous. Undoubtedly unwashed hands are a source of great danger if they are allowed to come into contact with virulent organisms through touching any form of septic material. If, however, one no more dreams of introducing the uncovered hand into any cavity of the body than of introducing fæces into the peritoneal cavity, and if one never does a

* Being an extract from a paper read before the Royal Academy of Medicine in Ireland (Obstetrical Section), to be published in full in the Journal of Obstetrics and Gynæcology of the British Empire.

septic dressing, nor even touches the surrounding area of a wound with ungloved hands, whence are the pathogenic organisms to be gathered? Apart from the fact that quite a considerable number of surgeons operate without gloves, it is almost impossible to trace a single case where an infection of a surgical wound can be traced to the hands of the operator. Colonel S. T. B. Williams (late I.M.S.) allows me to say that he performed major operations for years in India without using rubber gloves. Neither he nor his Indian orderlies washed their hands, but immersed them for one minute in a solution of carbolic (1-20). He never had any reason to consider a change in this method, which was so warmly advocated by Lister.

By experiment we found that the unwashed hand always grew air-borne organisms and the *Staphylococcus albus*. I never succeeded in finding a streptococcus. We also found that washing, however thorough, always increased the number of organisms on the hand. As a result of these experiments it is suggested that the following method of treating the hands, while it may not be the best, is simple, consistently efficient, and does not damage a delicate skin. Unwashed socially clean hands should be rubbed together for one half minute in a 1-1000 solution of biniodide of mercury, and then rubbed together in commercial spirit for one half minute and allowed to dry. A sterile swab may be used to rub the hands with the spirit, and the hands may be dried with a sterile towel if preferred. The routine advocated is as follows.

1. Every student and midwife should be trained to keep the hands socially clean. The only way this can be done is to insist that the habit be formed of cutting or filing the nails down at a definite time on a definite day of the week.

2. Abstention is all-important. Every doctor, student, and midwife should carry a pair of well-fitting unpunctured rubber gloves in a suitable pouch. When required the gloves can be put on, using powder if necessary. The gloves when on should be washed and rubbed together in antiseptic as above described. Any number of cases can be examined or dressed, the same routine being carried out between each case. At the end of the morning the gloves should be washed, treated with antiseptic, dried on an ordinary towel, powdered, and returned to the pouch. The outside of the glove becomes the inside on the next occasion, and is found to be sterile.

3. If there is any possibility of the gloves being punctured during the operation the hands should be treated as above suggested before the gloves are put on. After the hands have been treated, and the gloves have been put on and sterilised, the gown is put on. The gloves are pulled up over the end of the sleeves and re-rinsed in biniodide. Between operations the gown can be changed and the gloves re-sterilised. Punctures with a fine needle do not matter, but if any obvious puncture is made the glove should be changed. Before making vaginal examinations, removing placentæ, &c., it is quite unnecessary to treat socially clean hands before putting on the gloves.

This technique, it is contended, will cut down the expense of gloves to the hospital, will save a lot of trouble to the nursing staff, and inculcate logical ideas in the minds of future practitioners. It will be of still greater importance in the practice of midwifery in private. When one is called to a dirty house to clear out an abortion or to put on the forceps single-handed, it is impossible to carry out the theatre ideas of asepsis. It is often impossible to get frequent changes of water in which to wash. Very often the patient has to be moved in the middle of the operation or the anæsthetic has to be seen to. It is partly because a blind and pathetic faith in the inherent asepsis of a once boiled glove is so strongly entrenched in the mind of the present-day student that the results in midwifery are so lamentable.

The above technique is logically sound, is bacteriologically confirmed, and has been thoroughly tested by me in the obstetrical and gynæcological practice of the Rotunda Hospital. Let us avoid the danger of being lost in admiration of a ritual which appears attractive merely because of its inherent difficulties.

PART II.—(J. W. B.).

The technique used for the bacteriological control of the various methods of hand preparation was to wash with 10 c.cm. of sterile saline, using a sterile swab with which the hand was well scrubbed; 1 c.cm. of this saline was added to a tube of melted agar at 48° C. and a plate poured. After 48 hours' incubation the number of colonies was counted. The method of sterilising the glove on the hand was tested, firstly, on an ordinary non-sterile glove; secondly, on a glove contaminated with pus and fæces; and, thirdly, on a glove on which a culture of *B. coli* had dried. In all cases the glove was sterile when examined after treatment on the hand. Since the method was obviously efficient for the sterilisation of the exterior of the glove it remained to examine the condition of the hand within the glove, an important matter owing to the possibility of bacteria escaping from the hand through a puncture in the glove.

First, a number of socially clean hands were tested and from them bacteria varying from 80 to 6320 were removed by the washing process. Then similar hands, which had been enclosed in sterile gloves for periods of from one to two hours, were examined and the bacteria were found to number from 1380 to 25,000. As regards the preparation of the hands, it was found that thorough washing, as practised in operating theatres, increased the bacteria easily removable, in one case from 1300 to 35,000 and in another from 5080 to 18,400. Subsequent treatment with 1 : 1000 biniodide eliminated the majority of these. The commonly used method of inserting the washed hand into a glove containing 1 : 1000 biniodide was found to give very varying results, from 0 to 14,700 bacteria having been found on hands so treated. The substitution of sterile water for biniodide was even less successful, and "wet" methods were decided to be unreliable from the bacteriological point of view, in addition to being injurious to the skin. It was found that spirit alone, without previous washing, the hand being allowed to dry before a sterile glove was put on, gave very good results. In one case a hand so treated after two hours only yielded 20 bacteria, while the other hand, entirely untreated, gave 3310.

Dr. Theobald's technique was tested 19 times, the gloves remaining on the hands from one and a half to five hours. On three occasions the hands were sterile. Twelve times the bacteria were 100 or less. Only in two tests did they exceed 350. A really bad result was only obtained once, 3220 bacteria, and here it is believed that some gross error had been made either in the technique or in the testing. In the case of a dry hand very few bacteria could escape through a small puncture in the glove, and if infected material is avoided by the bare hand the chance of these being pathogenic is remote. The bacteriological tests have supported Dr. Theobald's contention that his method is a safe one for surgical and obstetrical practice.

BRIGHTON, HOVE, AND PRESTON DISPENSARY.—The financial position of the institution had for years been causing considerable anxiety to the governors, and the year 1922 closed with a serious deficiency; great efforts were made and the year 1923 closed with a balance in hand of £62. At the annual meeting of the governors on Feb. 12th Alderman and Mrs. W. Jago were appointed life-governors in recognition of their valuable services in raising money for the institution. The governors accepted with regret the resignation of Colonel C. Somers Clarke, for many years hon. secretary. The annual report showed that 3879 out-patients were treated—820 at the parent establishment, 838 at the northern branch, and 2221 at the western branch—while the total number of patients visited at their homes was 1403, the number of visits paid being 9929.

BED-ISOLATION,

WITH SPECIAL REFERENCE TO MEASLES AND CHICKEN-POX.

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RECENT reports of the experiences of different observers [1 2 3] who have instituted the system of barrier-nursing, known as "bed-isolation," have rendered any fresh description upon my part of the technique of the method unnecessary. I have myself given brief accounts elsewhere [4 5] of the working and results of the system at Little Bromwich Hospital. In this paper I propose to give some instances of success and failure in the bed-isolation of cases of measles and chicken-pox.

The technique of bed-isolation, which I personally learned from Dr. C. Rundle, of Fazakerley, some 12 or 13 years ago, has—probably with some modification—been carried out by various workers. It is possible, of course, absolutely to standardise technique, but it is obviously not possible to standardise the all-important human element which necessarily has to carry out the technique laid down. Nevertheless, it may be assumed—and this is certainly true of my own hospital—that at every institution at which the method has been given a trial the best available nursing staff, under a good surgically trained sister, has been employed to work the ward. It goes without saying that if we have in bed-isolation a method which can entirely replace not only the orthodox isolation block of small separate wards but the cubicle block for all the purposes to which such blocks are put in infectious diseases hospitals, then we possess a method which, particularly in these days of high building costs, is one of enormous utility and economy.

The value of bed-isolation in every-day fever hospital practice must, I submit, be judged rather by its failures—where failures have occurred—than by any aggregate of successes. It is easily possible, as a glance at my registers would show, to state with perfect truth that a large number of cases had been nursed in bed-isolation without any instance of cross-infection having occurred. This may convey very little. It is well known to all of us that certain of the acute infective diseases may be perfectly safely nursed in the same ward as patients suffering from other infections, or from no infection at all, provided the principles of barrier-nursing are carried out. But there are other of the acute infections about which we are not so sure.

Measles and Chicken-pox as Tests.

Dr. Frederic Thomson considers that measles and particularly chicken-pox constitute a fair if critical test of the system. I agree with him, if only for the reason that, in this country at any rate, these are the two diseases which so frequently give rise to administrative difficulties not only in fever hospitals but in hospitals for sick children and other children's institutions. If these two diseases are admitted to be fair criteria, then the questions to be decided are the following:—

1. Can bed-isolation completely replace for the segregation of measles and chicken-pox, admitted in any stage and in any number, the ordinary isolation block of small separate wards or the cubicle block?
2. If it cannot wholly replace these other systems in the case of these two diseases, to what extent, if any, can it replace them?
3. If it cannot replace them wholly or in part, what are the probable reasons for failure?

[1] Rundle, C.: THE LANCET, 1922, ii., 376.
[2] MacIntyre, D.: Ibid., 1922, ii., 377.
[3] Thomson, F.: Ibid., 1923, i., 1146.
[4] Harries, E. H. R.: Ibid., 1922, ii., 538.
[5] Reports M.O.H., City of Birmingham, 1920, 1921, and 1922.

The System in Being at Little Bromwich Hospital.

The bed-isolation system at Little Bromwich Hospital has now been working for three and a half years. During this time in round numbers 1200 cases have been admitted to the wards in which the system is employed. The first 800 cases or so were nursed in a ward in which a wall space of only 9 ft. per bed was allotted; for the succeeding 400 a better ward has been in use in which a wall space of 12 ft. per bed is allowed.

The original ward contained in each division—the divisions being separated by a central kitchen and lobby—eight beds and eight cots—i.e., a total of 32. The present ward contains six beds and six cots in each division, and also possesses two side-wards opening off each of the main divisions. (These side-wards usually receive members of the nursing staff who may be suffering from diphtheria or scarlet fever.) In the original and in the present ward one, and sometimes two, iron cradles have been frequently employed in addition, for the reception of infants up to a year old. These cradles, when in use, are invariably placed in the middle line of the ward, near the central fires, and never along the walls.

In both the wards employed beds have always occupied one side of each division and cots the other. This is a factor of some practical importance in estimating results, since it is obvious that the test of the system must be more severe in the case of the very young susceptible children occupying the cots than in the case of the older children and adults occupying the beds. This arrangement, although not necessarily eliminating the human immune barrier, certainly alters the probable distribution of these barriers in the ward.

Before proceeding to an examination of results it is, I think, necessary to state the reason for introducing "bed-isolation" at Little Bromwich Hospital, since the reason for the introduction of the system may have a very important bearing upon the extent and variety of the infective material admitted to the ward.

Incidence of Cross-infection.

The original ward at Little Bromwich arose not out of any desire to test the limits of the system, but out of the sheer necessity for providing at a time of epidemic diphtheria, scarlet fever, and measles additional accommodation for cases which for one reason or another it was impossible or undesirable to admit either to the ordinary scarlet fever or diphtheria wards or to the orthodox isolation blocks, which were full. Hence, every case admitted to the ward was accompanied by the pious hope that no cross-infection would occur.

In the course of nursing 1200 cases cross-infection has been initiated by measles on three occasions, by chicken-pox on three occasions, and by scarlet fever twice. Six of these eight breakdowns—viz., measles twice, chicken-pox three times, and scarlet fever once, occurred in the original ward (with a wall space of 9 ft. per bed). When measles "crossed" on two of the three occasions the child in the adjoining cot only was infected (once with a wall space of 9 ft. and once with 12 ft.); on the third occasion three children on the opposite side of the ward were infected. (This outbreak will be discussed later.) In the case of chicken-pox on two of the three occasions of breakdown an extensive ward infection followed; on the third occasion the child in the next cot only was infected.

The bald statement given above possesses little scientific value. In order that some opinion may be formed, it is necessary to know not only how many times measles, chicken-pox, and scarlet fever have been introduced into the ward, but in what stages they were introduced, and also to have an idea of the number of other patients "at risk" on specific occasions. With regard to scarlet fever, beyond stating that this disease has in various stages and with various accompanying conditions been nursed in bed-isolation on hundreds of occasions, and that in both instances cross-infection was due to proved personal contact (in breach of rules) of a child in an infective

condition with another, I do not propose further to consider that disease in this paper. It is well recognised that the infectivity of scarlet fever is low and that it can be barrier-nursed with very slight risk of spread.

Measles.

I have analysed the first thousand cases admitted to the ward and I find that in that total were comprised 63 cases of measles. It is generally agreed that the infectivity of measles has become very considerably lessened by the time that the exanthem is fully out; hence, it is important further to classify these 63 cases according to the state of disease on admission. The admissions were distributed as follows:—

1. Pre-exanthem stage—i.e., either incubating or Koplik's spots only present on admission	23
2. Exanthem appearing or fully out on admission ..	30
3. Exanthem faded on admission	10

Thus, of the 63 admissions about a third inhabited the ward during their most infective phase. In each of the three instances of cross-infection by measles the originating case belonged to the first or pre-exanthem group.

Chicken-pox.

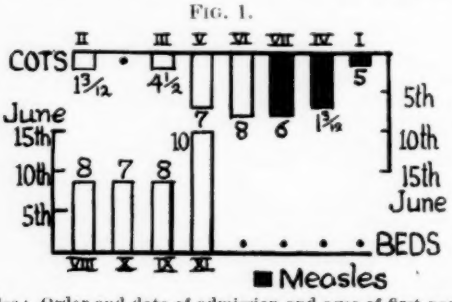
A similar analysis of the first thousand cases dealt with under conditions of bed-isolation shows that chicken-pox was admitted on 24 occasions. These 24 cases may be divided as follows:—

1. Incubating	4
2. Early eruption	10
3. Scabbing	10

The three breakdowns after the introduction of chicken-pox were each attributable to cases admitted during the incubation period.

I must confess, having regard to the failure of so experienced a physician as Dr. Foord Caiger always to prevent the spread of chicken-pox in glass cubicles,[6] that I introduced chicken-pox into my bed-isolation ward with great trepidation. After a few successes with cases introduced in the later stages of the eruption I ventured on a case in the incubation stage and failed. As I have already mentioned, three out of four cases introduced at a similar stage

FIG. 1.



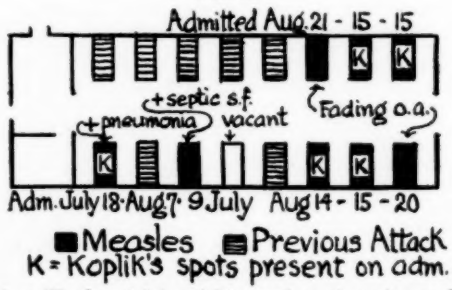
Measles: Order and date of admission and ages of first population of west division of ward. I., early measles; IV., measles with broncho-pneumonia; VII., early measles. No history of previous measles in other patients.

have led to subsequent cases. Whatever the cause—air-borne or human-borne infection—our experiences with early chicken-pox have been so unfortunate that I would not knowingly admit a case of this disease, at any rate in the incubation stage, to the bed-isolation ward, and I prefer not to admit it at any stage. Hence, the small total of admissions of this disease.

I must here refer to certain reconstructions of actual bed-isolation ward populations with particular reference to measles. All the diagrams which I have made are constructed from material furnished by the original ward—the wall space per bed being, as I have stated, 9 ft. From the point of view of air-borne infection this lessened wall space involves a more severe trial of the system than where a greater wall space obtains; and further, under these conditions the strain upon the nursing staff is greater, owing to the larger number of patients to be bed-isolated. Hence the first 800 cases dealt with at Little Bromwich constituted a rigorous test of the possibilities of aerial spread from bed to bed and of the quality of the nursing. In fact, these two conditions—limitation of wall space and strain on the nursing staff—may be considered as having borne too hardly upon the system. Are there any factors other than space and technique which may operate in favour of safe bed-isolation?

I have already indicated that in my opinion it is important to stress the stage of the disease under discussion at the time of its admission to the ward. Our failures with measles and chicken-pox occurred in connexion with cases admitted in the earliest stages. Again, I have myself stated that "as many as three cases of measles in the early pre-eruptive (Koplik's spots) stage have been safely treated at one time in a single division of the ward."[7] This is

FIG. 2.


Admitted Aug. 21 - 15 - 15
K K
+septic s.f.
+pneumonia
vacant
Fading o.a.
K K K
Adm. July 18 Aug 7 9 July Aug 14 - 15 - 20
Measles Previous Attack
K = Koplik's spots present on adm.

Measles: Ward containing eight cases in various stages. Every other inhabitant of the ward had a previous history of measles. If the histories were correct there was no likelihood of cross-infection; in any case none occurred either in this (west) or in the east division of the ward.

perfectly true, but such a statement may not under all conditions have an equal epidemiological value.

For example, I have reconstructed (Fig. 1) the first population of the original ward which was opened on June 1st, 1920. On that day the first case—one of measles in the early stage (Koplik's spots present—rash just appearing) was admitted to Cot 16. The second case (Cot 9) came in the following day, and so on. The order and day of arrival of each case are indicated upon the diagram—the latter (day of arrival) by the length of the column. Only the cases admitted up to June 15th are shown. By that date Cot 10, and Beds 1, 2, 3, and 4 had not been filled and were not occupied until several days later.

From the point of view of risk of infection from measles, therefore, it will be seen that of the small community of 12 persons admitted in a period of 15 days, three came in with measles (two in the early exanthem stage) and one with exanthem fully developed. According to the histories obtained, none of the remaining nine patients had had measles. Histories of previous attacks of measles are, of course, not very reliable—the chances are that some of these nine patients had had measles. But even supposing they had not, what were the real risks of infection, air-borne or human borne? It will be seen by a study of the diagram that the greatest source of infection was probably introduced into Cot 14 on June 8th (early measles); risk of infection from Cot 15 (late measles) was negligible. No. 16—the first case admitted—would, in its phase of maximum infectivity, only be capable of infecting the inhabitants of Cots 11 and 9, who were admitted to the far end of the same side of the ward on the following day. Risk commenced at Cot 14. No. 5 arrived on the fifteenth day when all danger had passed. So that the risk of spread was really confined to seven inhabitants. No cross-infection occurred. Thus, although it is true to say that three cases of measles

[6] Reports M.A.B., 1907, 1908, quoted by Chapin, Sources and Modes of Infection, 1910.

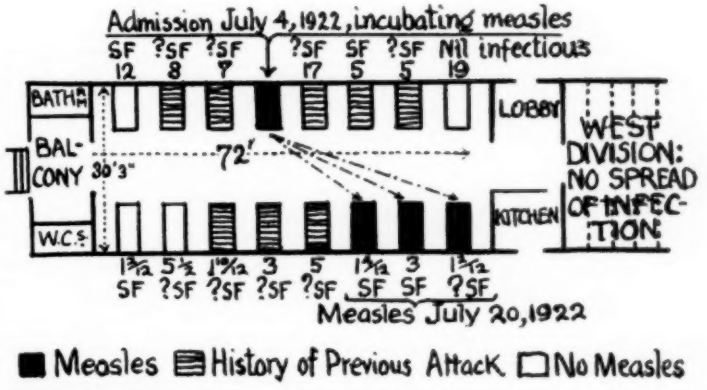
[7] THE LANCET, loc. cit.

(two of them early) were nursed at one time in the ward, yet the real risk of spread at any one time is very much smaller than this bare statement would seem to imply.

Fig. 2 shows what protection against measles "crossing" may be afforded by reason of previous attack. In this particular ward population there are eight cases of measles, five of them introduced in the stage of Koplik's spots. The cases were admitted in the ordinary routine work of the ward—i.e., the remaining population was in no way selected or arranged. There is one vacant cot. Every one of the remaining seven patients had a history of previous measles. Therefore, if this history was correct, there was no likelihood of cross-infection. In any case none occurred either in this (west) or the east division of the ward. Protection as a result of previous attack may therefore be a powerful ally in bed-isolation work.

Fig. 3 is a reconstruction of a ward population amongst which spread of measles occurred following the introduction of a case in the stage of incubation. Three young children on the opposite side of the ward developed measles on the same date. Was infection air-borne or human-borne?

FIG. 3.

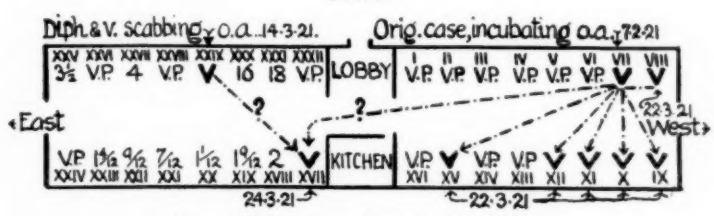


Measles: Diagram showing cross-infection originated by a case admitted incubating measles. Fifty per cent. of ward population protected by previous attack.

It will be noted that the line of spread was entirely in one direction—that is, obliquely across the ward—and that as much as 50 per cent. of the ward population at the moment were protected by previous attack. In favour of the air-borne theory it is of interest to note that at the east end of the ward is a door opening on to a balcony and that this door at that time of the year (July) would be almost constantly open; that the east end of the ward is exposed to what is practically open country, and that on many occasions a breeze would be blowing through the ward from east to west. It is perhaps of some significance that the three cases infected were to the west of the infecting case. Is it not, however, much more likely that these three children were infected simultaneously as the result of a breach of technique on the part of doctor or nurse examining or attending the introduced case and then proceeding without efficient sterilisation of hands to attend to these three young children? My own belief is, that this is an instance of human-borne infection. It is understood, of course, that the incubating child did not leave its bed and stroll across to its neighbours.

Turning now to chicken-pox, I have reconstructed one of the three failures which is of some interest. Fig. 4 illustrates an outbreak following the admission of what I have called a "concealed" case of chicken-pox and incidentally emphasises the ease with which chicken-pox may be missed, and the difficulty of detecting the original case. On a certain day no fewer than six cases of chicken-pox occurred in the bed-isolation ward. No case was known to have been admitted for a very considerable time. Therefore, a careful examination was made of all the remaining children in that division of the ward. These were ten in number and nine of them had a previous history and showed scars of chicken-pox. The tenth—a boy admitted with scarlet fever and lesions of scabies which had become impetiginous—was found on careful search to present three or four quite recent and typical scars of chicken-pox on the chest amongst his healing impetiginous lesions. I have no doubt that this boy, admitted in what must have been the commencement of his incubation period, was the source of infection for the others. Note that a three weeks old baby in a cradle escaped. Two days later a case of severe diphtheria with cardiac trouble in the opposite division of the ward developed chicken-pox. How was she infected? On examination of the other patients in this division it was found that No. 29 had been admitted with diphtheria and a few chicken-pox *scabs* ten days before No. 17 developed chicken-pox, No. 29 having herself developed chicken-pox some six weeks before admission to the ward. She was therefore a possible but unlikely source of infection.

FIG. 4.


Diph. & V. scabbing o.a. 14-3-21.
Orig. case, incubating o.a. 7-3-21
XXV XXVI XXVII XXVIII XXIX XXX XXXI XXXII
3 1/2 V.P. 4 V.P. V 16 18 V.P.
LOBBY
I II III IV V VI VII VIII
V.P. V.P. V.P. V.P. V.P. V.P. V V
East
West
22-3-21
24-3-21
22-3-21
V.P. 1 3/12 9/12 7/12 1/12 1 9/12 2 V
XXIV XXIII XXII XXI XX XIX XVIII XVII
KITCHEN
V.P. V V.P. V.P. V V V V
XVI XV XIV XIII XII XI X IX

V, varicella; VP, previous attack of varicella.

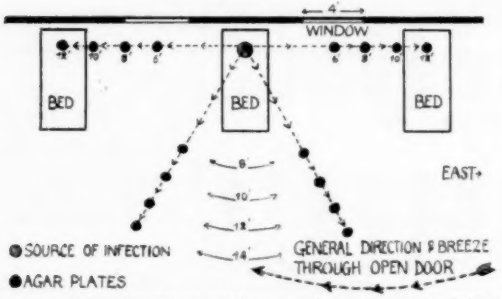
Chicken-pox: Diagram showing distribution of cross-infection following a concealed case admitted in incubation period (see text). Every patient in the same division unprotected by a previous attack developed chicken-pox, except a three weeks old baby in a cradle. How was No. XVII. in the east division infected? By aerial spread, by a nurse, or from No. XXIX.—a very late case?

The other possibilities are two—either that there was an air-borne infection from the far corner of one division of the ward through the lobby and round the corner to Cot 17 in the opposite division of the ward, or that infection was conveyed by a nurse from the infecting case not only to the six susceptible children in the west division of the ward—who simultaneously developed varicella—but to the very ill child needing constant attention in the corner of the east division. When I say that a night nurse on duty at relevant dates was found to have had an unreported bandaged finger impossible of proper sterilisation, I think there are some grounds for accepting the view that the diphtheria child in the other division at any rate was the victim of human-borne infection. The escape of the three weeks old baby is interesting from the point of view of immunity, since this child would need frequent attention, and was also—if the air-borne view be preferred—in the direct line of spread from one ward to the other.

The other extensive outbreak of varicella originated with a child admitted as a "contact" and who duly

developed the disease. The child in the next bed developed chicken-pox 17 days later. Eighteen days later a child in the opposite division of the ward developed chicken-pox, and from this case arose four further cases in the same division after 15, 16, 16, and 19 days respectively. In this instance it is impossible to exclude the possibility of air-borne infection in the first "cross"—i.e., to the child in the next cot, but it is also impossible, I submit, to exclude the view that infection was human-borne from the one division of the ward to the other. Air-borne infection may have accounted for the four cases of the third generation which arose in this division, the spread being in the direction of the breeze through the open door and to both cot and bed sides. In any case, the experience was sufficiently unfortunate, and resulted in the ward being put out of action for a considerable period.

FIG. 5.



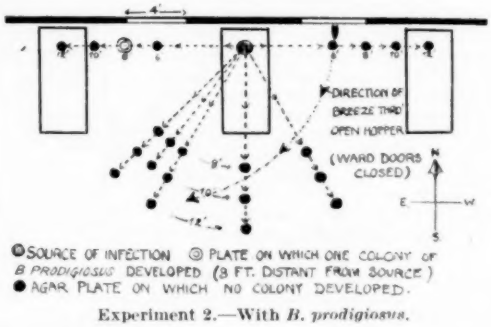
Experiment 1.—Result completely negative. No plates infected with *B. prodigiosus*.

Experiments with B. prodigiosus.

In conjunction with my colleague, Dr. Hubert Henry, City Bacteriologist for Birmingham, an endeavour was made to ascertain how far an organism could be projected by coughing. Advantage was taken of the fact of the old bed-isolation ward being empty after cleaning and a section of the east division was arranged as regards spacing of beds exactly as when the ward was in use for bed-isolation. The organism proposed to be employed was that well-tried favourite of similar experiments—*B. prodigiosus*.

On the day preceding the first experiment a number of agar plates were exposed in various parts of the floor of the ward and left for 25–30 minutes. These on incubation showed no evidence of the presence of *B. prodigiosus* in the ward. Accordingly, on the following day a series of plates was arranged as in Fig. 5. I then heavily infected my own throat with a broth culture of *B. prodigiosus* and arranged myself on the central one of the three beds exactly in the position of a patient. Dr. Henry then uncovered the plates, and I coughed vigorously and repeatedly—partially raising myself on the bed to do so—first to right and left of the bed and then obliquely forward over the bed to right and left in the line of the plates. The plates were left undisturbed for 25 minutes and were then covered and collected by Dr. Henry, who, after incubating them in his laboratory, reported that not a single colony of *B. prodigiosus* had developed on any of the plates. It will be noted in the diagram that a breeze (it was a July day) was blowing through the open door. The general direction of this breeze is denoted by the arrow. On the whole it tended to blow *against* the direction of my coughs.

FIG. 6.



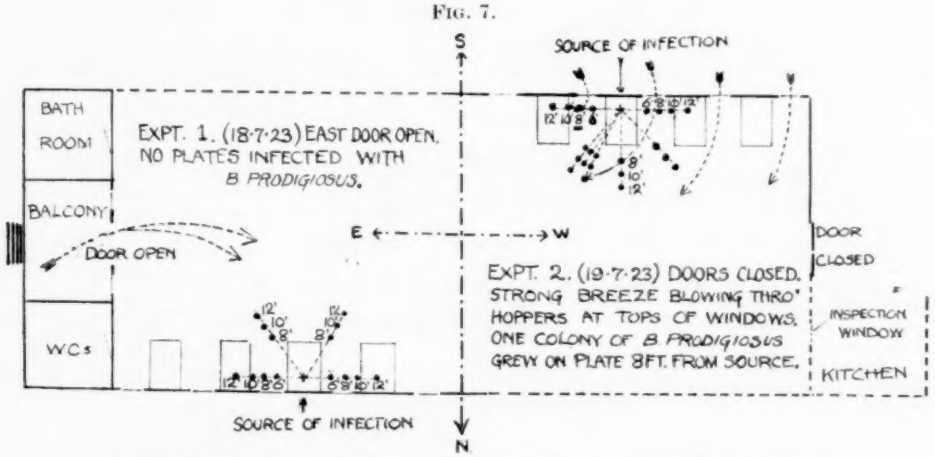
Experiment 2.—With *B. prodigiosus*.

On the following day the opposite side of the same division of the ward was used, three different beds being set up. In this experiment the ward doors were closed, but a breeze was blowing through open hopper windows behind and above the beds. The general direction of the breeze is again shown by an arrow. An additional number of plates was employed in this experiment (as shown in the diagram). I again infected my throat and again endeavoured to cough vigorously in the lines of the plates. The plates were again allowed to remain 25 minutes, and then dealt with by Dr. Herry as before. Dr. Henry reported that a single colony of *B. prodigiosus* had developed on the plate which had been placed 8 feet due east of my head. It will be noted that the direction of the breeze in this instance was towards the east end of the ward.

(Fig. 7 is a combination of Figs. 5 and 6 in order better to show the relative positions in the ward at which the experiments were made.)

These two experiments, of course, are no more than suggestive, and I do not for a moment attempt to draw any deduction from them. All they do show is that an adult artificially infected with a known organism

FIG. 7.



Combined diagram of experiments on successive days in empty east division of ward.

and simulating the act of coughing in certain directions was—with a breeze assisting to an unknown extent—able to infect an agar plate 8 feet away—and no further—in a direct line with his head. Many more experiments under more varied conditions are desirable. It does not follow that because *B. prodigiosus* could only be propelled 8 feet that the virus of measles or of varicella cannot be spread further by a patient actually suffering from one disease or the other.

In this connexion attention may be drawn to a very valuable contribution by Wynter Blyth to the Section of Public Health at the British Medical Association Annual Meeting, 1923.[8] This author criticises much of the experimental work which has been done in connexion with the bacteriology of sewer air and emphasises the conditions which obtain where organisms are carried in bubbles. He says:

"The thinnest bubble . . . could carry an organism with a diameter some 17,000 times greater than the thickness of the film. When a bubble breaks there is no 'explosion' but the film, as it were, 'flaps back' at the rate of 72 miles an hour, and it is this force which ejects the comparatively enormous organism. Absorption of liquid by the organism is one of the factors in determining its convection by light currents of air, and such absorption is minimised if the organism has been in contact with grease. It was found by experiments with *B. prodigiosus* that the maximum time taken to fall through 100 cm. when discharged from a bubble of soap was one minute, and when discharged from a bubble of gelatin 45 seconds.

". . . The volume of the globule of water and organisms to that of the naked organism is . . . about 1000 to 1. Nevertheless, these particles are small enough to be carried considerable distances by low velocity currents of air as much as 6 feet in a draught of only 30 feet per minute."

The possibility of bubble infection under conditions of bed isolation deserves further investigation. With regard to the extreme infectivity of chicken-pox at its earliest stages, the work of Girard [9] on complement deviation in chicken-pox is interesting. Girard found that the reaction appears in the early days of the disease—from the first to the sixth; by that time it is only feebly positive. Girard used as an antigen a saline extract of varicella scabs. It does not follow, of course, that the antigen is necessarily the virus.

Summary and Conclusions.

May I now, if only to serve as points for discussion, summarise the conclusions I have arrived at:—

1. Bed-isolation cannot replace small separate wards for the nursing of measles and chicken-pox in their earliest phases. These diseases in their later and less infective phases may be safely nursed under conditions of bed-isolation.

2. For short distances it is impossible to exclude the theory of aerial spread—possibly by bubbles in the case of measles. For distances of many feet human-borne infection is much more probable. Cases of measles and of chicken-pox in their later phases can be successfully nursed with a wall space of 9 ft. per bed. A wall space of 12 ft. has not entirely prevented cross-infection by measles admitted in the early stage. Nevertheless, a wall space of not less than 12 ft. per bed should be available. This ensures a smaller number of patients in the ward, and hence less probability of the staff becoming overworked and slurring the technique.

3. Protection by previous attack plays a part which always is important but which varies with different diseases, and with the age distribution of the ward population. In the case of measles as much as 50 per cent. of the ward population at any time may be protected by previous attack.

4. In spite of its limitations in the direction of early measles and chicken-pox, bed isolation is a valuable method for the treatment of conditions of relatively low infectivity and of non-infective conditions in the same ward. It is a method which depends for its success almost entirely upon the skill and integrity of the nursing staff.

[8] Brit. Med. Jour., 1923, ii., 762.
[9] Girard: Thèse de Paris, 1918.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF PATHOLOGY.

A MEETING of this section was held on Feb. 19th, Dr. J. A. MURRAY being in the chair.

"Aleukia."

Dr. S. C. DYKE recorded observations on six cases of this condition, all characterised by a leucopenia of varying degree, with a relative and actual diminution of the polymorphs; in all the platelets were greatly increased in numbers. Clinically all the cases showed a hæmorrhagic tendency, and some had been labelled with the diagnosis of purpura hæmorrhagica. Sections of the spleen and bone marrow were shown from three of the cases; these showed in one instance a streptococcal, in the second a tuberculous infection, and in the last the presence of coliform bacilli. Dr. Dyke discussed the question as to whether the infection was to be regarded as the cause of the anæmia and hæmorrhagic manifestations, or whether the infection had merely gained a foothold as a result of the aplastic state of the hæmatopoietic system. The conclusion was that the myelophthisic state was primary and the infection secondary.

Experimental Biliary Cirrhosis Due to Manganese.

Dr. G. MARSHALL FINDLAY said that although cases of chronic manganese poisoning had been described among industrial workers on the Continent, in America, and also, more recently, in this country, comparatively little was yet known in regard to the pathological changes produced by manganese. This lack of knowledge might be due to the fact that the post-mortem examination of only one case of chronic manganese poisoning in man has so far been recorded (Casamajor, 1916), while attempts to produce manganese poisoning in animals had not been very satisfactory. Experiments were therefore carried out on rabbits, guinea-pigs, and rats. When manganous chloride was injected subcutaneously into rabbits in doses of from 20–80 mg., the animal usually died in from one to two days. Microscopically, there was found very marked fatty degeneration of the liver parenchyma, while in the kidneys there were hæmorrhages into the glomerular capsules and degeneration in the tubular epithelium. When smaller doses of from 3–5 mg. were injected subcutaneously for from six to eight weeks, the rabbits usually showed a decline in body-weight and in some cases a rigidity of the hind limbs and neck. On post-mortem examination there was frequently an icteric tint in the subcutaneous tissues, but no evidence of ascites. The liver was usually enlarged, the surface being either smooth or slightly roughened and the colour yellow or yellowish red. Microscopically in the liver there was found an increase in fibrous tissue accompanied by a small round-cell infiltration and the formation of fresh bile capillaries. These changes were at first restricted to the portal spaces, later they extended round the periphery of the lobules, giving rise to a form of cirrhosis definitely monolobular in type. Subcutaneous injections of manganous chloride in guinea-pigs were followed by results entirely similar to those described in rabbits, the liver showing the various stages of biliary cirrhosis. Rats, when repeatedly injected with manganous chloride, also developed a cirrhotic condition in the liver, accompanied by jaundice but unassociated with ascites. In some cases they exhibited a rigidity of the legs and neck. The fibrosis in the liver was at first confined to the portal spaces and to the periphery of the lobules, but later it extended between the parenchymal cells, dividing them up into little islands. Many of the liver cells were hypertrophic and all showed fatty changes. A number of rats also were fed on manganous chloride which was added to their ordinary diet. In from six to ten weeks they likewise developed

a cirrhosis of the liver associated with jaundice and in some cases with rigidity of the limbs. The microscopical appearances in the liver were similar to those produced by the subcutaneous administration of manganese. It was of some interest to note that many medicinal waters contained small though quite appreciable quantities of manganese salts in solution. The selective action of manganese on the liver would appear to be due to the fact that it was largely excreted from the body by the bile. It was only when large doses were administered parenterally that small amounts might appear in the urine. The similarity of chronic manganese poisoning to the syndrome of progessive hepatico-lenticular degeneration described by Kinnier Wilson (1912) was extremely striking. The nervous lesions occurring in the animals used in these experiments were at present the subject of investigation.

A communication on Growth-promoting Substances and Embryonic and Tumour Extracts, by Mr. A. H. DREW, was also read.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.

A MEETING of this Society was held at the rooms of the Medical Society of London on Feb. 29th, Colonel L. W. HARRISON, the President, being in the chair.

A Suggested Investigation.

The PRESIDENT intimated that the Council had given consideration to a statement [1] made at a recent discussion to the effect that the modern intensive treatment of syphilis was responsible for an increase in neuro-recurrences in syphilitics. There were divergent views on the matter, not only here, but on the Continent, and it was very desirable to settle it. Therefore the Council desired that members should investigate the point, each in his own clinic. During the war about 100,000 soldiers had had a necessarily short course of salvarsan and mercury treatment, and as the war started nine years ago, the time was approaching when the aftermath of syphilis of the parenchyma of the central nervous system among those cases could be expected. On the basis of a 4 per cent. incidence of general paralysis of the insane and 2 per cent. of tabes, then some 6000 of those war cases could be expected to present themselves with syphilis of the parenchyma of the central nervous system. He believed there was nothing like that number in the whole country, and in the treatment centres none, or very few, had been seen. He hoped this combined inquiry would settle this important question once and for all.

Dr. F. N. KAY MENZIES supported the President and advocated the issuing of a questionnaire to all in charge of venereal clinics.

Dr. WILFRID FOX said a similar statement was made after each advance in the treatment of syphilis had been introduced. Some thought neuro-recurrence would ensue if anything more than Hutchinson's pills were given.

A discussion was then held on

The Instruction of the Medical Profession and of the Lay Public with Respect to the Facilities Provided for the Diagnosis and Treatment of Venereal Disease.

Dr. MENZIES, in opening, pointed out that by Article IV. of the Public Health V.D. Regulations, 1916, county councils and county borough councils must arrange lectures and addresses of an instructional character, as well as for the publication of any information which was likely to be of value, either to the medical profession or to the lay public with regard to venereal diseases. Those in the London County Council took the view that it was best that some things should be done by the public authority itself, while others could well be delegated to voluntary bodies, which should be paid for the duties they carried out in furtherance of the scheme. The whole profession in London was circularised, giving particulars of the schemes for treatment and the facilities which had been set up, where material could be reliably examined, and a report furnished; also how the members of the profession could be merged into and be helpful to the whole crusade. Certified practising midwives were also supplied with the necessary information on the subject; these could be very useful in bringing cases suffering from syphilis to the clinics. Other circulars were sent to maternity and child welfare centres, Poor-law authorities, and prison authorities, the last-named because of the number of prisoners who might still be in an infective condition when their sentences had expired. Magistrates, police, and bodies of social workers were also circularised. Next, a scheme was started for informing the public where treatment could be obtained, and Dr. Menzies showed specimens of posters which had been exhibited in public lavatories and other suitable places. He described the evolution which the Council passed through due to changing views as to what were the most efficacious means of reaching the public. In 1919 special series of addresses to employees of controlled firms were organised, and film representations setting out the dangers of the disease were frequently shown. Special committees were also started in the various metropolitan boroughs to assist the propaganda work. The L.C.C. had now dropped the press portion of the campaign. In London the pathological examinations made for practitioners in connexion with the disease numbered 3000 in 1917; in 1923 it had risen to 24,000. The teaching facilities to the profession had given, so far, a rather disappointing result. The all-day clinic had been found to be of enormous advantage. Four hundred London practitioners had now taken up the offer of salvarsan and substitute drugs free of charge, having produced the necessary certificate of competence to use them. Hints as to better or more likely lines of attack had been invited, but to this the critics had made a very poor response.

Mr. FRANK KIDD agreed that the propaganda which had been carried out by the L.C.C. was admirable, but as there had been some very unwise propaganda indulged in, he wished to utter a warning. It was, he thought, a mistake to use fear of disease as a weapon for inducing people to come for treatment, though probably it had been a factor in getting the V.D. clinics started, and without the clinics it would not have been possible to train doctors to use the new means of treatment. In the long run schemes of propaganda based upon fear were bound to fail: and a new malady seemed now to have arisen, which he might call propaganda disease. There were now an increasing number of patients with syphilophobia and gonorrhœophobia, who consulted the doctor with a fixed terror of venereal disease. They believed they would never be cured, that they would not be able to marry, and would die insane. They had read a number of alarmist statements in the papers, and believed them to be true. At a venereal section, of 630 attendances, 34 were women who applied because they suspected their husbands after reading propaganda advertisements, but none of the husbands were found to be diseased. Three others who were free of disease came because what they had read in their Sunday paper made them uneasy. Many—mostly men—applied for expert examination before marrying. In many with diseased minds on the subject it was found to be difficult, if not impossible, to cure them. Some of the patients had been in the hands of unwise and inefficiently trained men, and in them there was no evidence that there had been disease for a long time. Mr. Kidd quoted a number of cases illustrating these points. He urged that in this campaign an appeal should be made to the highest instincts, the building up of character and of good clean social habits. He would rather see 10 per cent. of the population suffering from venereal disease than 50 per cent. suffering from, weighed down by, the fear of it, and he held a similar view on the subject of the cancer campaign.

[1] See THE LANCET, Jan. 19th, 1924, p. 131.

Mr. E. B. TURNER dealt with the question from the standpoint of the general practitioner. He said he agreed largely with what Mr. Kidd said concerning propaganda on the wrong lines, but, as one who was responsible for a great deal of propaganda on this subject, he was convinced that propaganda on right lines did an enormous amount of good. There might be cases of syphilophobia, but the campaign had brought to many the realisation that they had the disease and how important it was that they should be promptly treated for it. The free clinic was a wonderful way of treating the disease and diminishing its incidence. But it became a different matter in rural and other sparsely populated districts. There clinics were few and far between, and the servant or farm-hand could not get leave from work to attend a distant clinic. When clinics were set up in the suburbs of large towns patients preferred to go into the town because they felt more secure from suspicion among their fellows. The only remedy seemed to be the education in these matters of the medical profession as a whole, and it was this need which made him urge a general recognition of the subject by the General Medical Council in the medical student's curriculum. Even though some medical men preferred not to treat venereal disease every practitioner should be able to take a smear and make a diagnosis and, if positive, direct the patient to the place where he could be efficiently treated. The aim should be to get cases at the beginning, and to that end the whole profession should be organised.

Prof. WINIFRED CULLIS said that, as a physiologist, she had always sought to emphasise the supreme importance of maintaining a high standard of health. She agreed with Mr. Kidd in deprecating the use of fear as a motive. Remedial measures were good, but how much better to be able to abolish the need for those measures. Unless the general populace could be educated as to the need to go to the clinics, the latter would do no good. With regard to syphilophobia, a certain proportion of people suffered from mental instability, but that was not a good reason for abolishing propaganda, which admittedly brought many people to the treatment centres. If physiology were more generally taught she thought there would be a much more sane and helpful attitude in regard to sex matters; there was still appalling prejudice on the subject, even among those who considered themselves educated, including the clergy. Help was required for the necessary teaching among the younger people. Positive knowledge was one of the best preventives.

Mrs. NEVILLE ROLFE, representing the National Council for Combating Venereal Diseases, said this body wished to push this campaign further than the public purse would support at present. During the last two years the National Council had been able to carry through a large amount of propaganda work against these diseases. She did not think the success of the campaign should be judged by its effect upon people who were abnormal, though she agreed with Mr. Kidd and others that the ground-work of the efforts should not be the instilling of the fear of the consequences of disease. Knowledge of the consequences, however, should not be withheld, nor should the bad results of neglecting to continue treatment. After a propaganda film was shown in a district the immediate attendances at the local clinic were often doubled. The Council had first to bring venereal disease up to the level of other public health subjects in the national consciousness, and she believed the right line now was to take all health subjects together and no longer concentrate on these particular diseases. Efforts should be made to reduce the agencies which promoted promiscuity. In four years the various notices had resulted in 87,600 letters being addressed to the National Council, a large number of the writers of which believed themselves to be infected and asked where they could obtain treatment. Mrs. Rolfe proceeded to speak in detail of the activities of the Council and the steps taken in the interests of men in the Mercantile Marine.

Colonel E. T. BURKE thought that such cases as Mr. Kidd spoke of were exceptional. Certainly the teaching of the general practitioner in these matters was essential, and it should be made a compulsory subject in the medical student's curriculum. Students should be required to have three or six months in the work of a V.D. clinic, so that a regiment of men would be built up who would be familiar with the matter on entering general practice. Colonel Burke spoke of the harmful effect of the statement of some doctors to their patients that three or four injections of "606" would put them right.

The PRESIDENT said he was sure Mr. Kidd would agree that propaganda was good so long as it was wise. He had long felt that all that was required was a plain statement of the case, without exaggeration, with emphasis on the value of thorough treatment, and its effect in preventing horrible late sequelæ. He thought the posters in the public lavatories were in the wrong place. In 1919 an offer was made by the Insurance Committee of London to give post-graduate instruction at Rochester Row, and in two years 400 practitioners attended that course. At St. Thomas's Hospital it was made compulsory for all dressers to attend the instruction on venereal disease in the centre. If that were followed at all hospitals it would do much to anticipate the benefit which would later accrue from the steps taken by the General Medical Council.

Dr. MENZIES briefly replied.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

A MEETING of the Fever Hospitals Medical Service Group of this Society was held on Feb. 22nd, Dr. E. W. GOODALL, the President, being in the chair.

Dr. E. H. R. HARRIES opened a discussion on

Bed-Isolation, with Special Reference to Measles and Chicken-pox.

His paper appears in the original columns of the present issue of THE LANCET.

The PRESIDENT congratulated Dr. Harries on his observations, but thought that little, if any, knowledge on the subject had been added to what was brought forward at the discussion held at a meeting of the Group in May last. In addition to the factors mentioned as being favourable to the spread of infection, such as the period of the disease, he would add the period of the epidemic. There was some evidence to show that certain diseases were more infectious during the waxing than during the waning of an epidemic. From his experience at the Eastern and North-Western Hospitals he had come to the conclusion that neither measles nor chicken-pox in the acute stage could be nursed, with safety to other patients, in a "bed-isolation" ward. In his experience cross-infection was more frequent in such a ward than in a ward or block consisting of completely separate rooms or chambers. That went to show that the conveyance of infection by air could not be ruled out. "Bed-isolation" wards should not contain more than 16 patients at the outside. The smaller the number of beds the better the result. It was desirable to provide the nursing staff employed in the ward with a written set of rules, but those rules should be simple and comprehensive. Local sanitary authorities must not be led into thinking that all kinds of acute infectious diseases could be treated together in the same ward under "bed-isolation" regulations, because even if it were found that the infection was never air-borne, it was quite certain that to prevent it being carried by any member of the staff that staff must be highly trained in these methods, and it was unlikely that the staff employed in small isolation hospitals would possess the requisite experience and technical knowledge. He thought it would be very difficult to defend an action-at-law brought in the case of a patient who had contracted a serious disease, such as measles, from another such case intentionally admitted into a "bed-isolation" ward.

Dr. FREDERIC THOMSON was glad that Dr. Harries assumed that at hospitals where "bed isolation" had been carried out the best available staff were employed for the work; evidence from the various hospitals concerned did not suggest much difference in efficiency of the staff, and any such implication would be invidious. Taking into consideration the size of these hospitals the choice of nurse must be ample, and it was more than probable that the nursing had been very good indeed. On the other hand, he could quite conceive that the requisite class of nurse might not be available in many small hospitals. He thought few could deny a measure of success to bed isolation as a mode of obviating the spread of infection by contact. Given a reliable staff, it was safe to treat mild or severe scarlet fever under such conditions, or, indeed, any disease of low infectivity, but accidents would happen just as in other methods of isolation. Of the few instances of the transmission of scarlet-fever infection, nearly all had been traced to some fault in the technique, such as the unobserved injured finger of a nurse, but the same danger would apply equally to blocks composed of single rooms. Much the same success had been obtained with diseases of higher infecting power in patients admitted at later and less infectious stages of the disease; but those who had admitted these diseases at the earliest stage had not been successful in avoiding the conveyance of infection to others; indeed, in chicken-pox admitted before the outcrop of the eruption the failure had been pronounced. It was interesting to discuss why failure arose in some diseases and not in others, but the broad fact remained that there had been failure under the best conditions of general management. As Dr. Harries had pointed out, it was easy enough to say with truth that one had treated a large number of infectious and other diseases in such a ward without cross infection, but in 1914 he had felt almost certain he could safely treat the diseases ordinarily sent into a "bed-isolation" ward were he to choose the day of the disease on which to send them there. Undoubtedly misconception had arisen because we did not fully realise that some diseases were much more infectious in certain phases; of this fact no better illustration could be given than Dr. C. Rundle's statement in 1912 that he had treated 41 cases of chicken-pox in his "bed-isolation" ward without cross infection, whereas the disease had been introduced accidentally into ordinary wards on 21 occasions, with cross infection in all but one instance. The explanation was now obvious, but was not realised by anyone then. He very much doubted if the cubicle block was any better than the "bed-isolation" ward, but the ordinary isolation block with single-bedded rooms, the doors of which opened on to the outer air and had no internal means of communication, was in his experience much more successful in the isolation of early measles and chicken-pox, mishaps being so rare as to point to some carelessness on the part of an attendant. On the other hand, those who had introduced measles and chicken-pox in the pre-eruptive stage to a "bed-isolation" ward had all failed, particularly badly with chicken-pox, since in the latter disease cross infection had arisen nearly every time. Of the seven exposures of chicken-pox at this stage in his ward, five were productive of the disease in others, and the two which failed to infect only endangered children who had already been exposed to a similar risk about a fortnight before. The experience of Dr. Goodall and Dr. Harries with chicken-pox at this stage appeared to have been similar to his, and as far as he was aware there were no other published experiences on this point. He thought there was little doubt that "bed isolation" could to some extent replace the single-bedded room, given suitable nurses. With regard to the reasons for failure of "bed isolation" wholly to replace the single-roomed block, he thought that in the earliest stages of certain infectious diseases infection could be conveyed through the air indoors by droplets, or some such means, for distances of 14 feet at least. It might be argued that attendants were less likely to be careless if working in a block of single-bedded rooms, because of the impression conveyed to their minds by the need for this complete isolation; or that in "bed isolation" the supervision of the ward was easier. In either case the supervision at night would not be complete and if the staff were good he did not think these arguments materially affected the case. He was not prepared to agree with Dr. Harries concerning the likelihood of infection of measles being human-borne rather than air-borne; and he did not think it would do to seek refuge in the reflection that it may be more difficult to wash from the hands certain infections, for if that was so the result in his single-roomed block could hardly have been so much better than in the "bed-isolation" ward.

Dr. D. MACINTYRE stated that, except in the case of chicken-pox, his experience of bed isolation was very similar to that of Dr. Harries. There appeared to be general agreement among those who had used the method that, excepting early measles and chicken-pox, most of the common infectious diseases could be safely nursed in a bed-isolation ward. This, he thought, marked a definite advance in our knowledge of the control of infection. With regard to chicken-pox, he had so far had no cross infection from this disease in the bed-isolation ward at Plaistow Hospital. Forty-two cases of chicken-pox had been safely treated in the ward during the past four and a half years. Some of these had been admitted in the first and second day of the eruption, but none had been in the ward during the incubation period. With measles his results had been different; cross infection had occurred during an epidemic in the spring of 1922, and again quite recently. Both failures had occurred when an epidemic had been at its height in the district and when the number of cases admitted to the ward had rapidly increased. During such epidemic periods patients admitted as scarlet fever and diphtheria were frequently found to be either suffering from or incubating measles, and it was often a difficult problem to isolate all these cases. He had made free use of the bed-isolation ward for this purpose, and his experience had led him to the conclusion that while measles in the eruptive stage could be controlled the number of such cases in the ward at the same time must be limited to one or two. The experiments carried out by Dr. Harries were very interesting, and he thought valuable knowledge might be gained by work along such lines. He entirely agreed with Dr. Harries regarding the value of a bed-isolation ward, especially in hospitals where small separate ward accommodation was limited.

Dr. HARRIES, replying, emphasised the importance of the time factor in connexion with the two experiments with *B. prodigiosus* detailed, and drew attention to the conception of "Velocity of Infection" due to Surgeon-Commander S. F. Dudley (Reports to Medical Research Council, No. 75). He believed that Dudley's theory applied to problems of bed isolation would prove of great value, and instanced his own experiences when acting as receiving officer at the base isolation hospital in Mesopotamia during the war. The method of collecting the infectious sick was for a launch twice a day to call at those depôts on the Tigris flying the yellow flag, and to collect in the same launch cases of most varied types of acute infections. The patients were placed on stretchers, and covered with blankets, and arranged on the floor of the launch. On arrival at Quarantine Island, the stretchers were removed from the launch, carried to the receiving room of the hospital, and again laid side by side on the floor. He had noted as many as ten different acute infections brought in at one and the same time: some water-borne, e.g., cholera and typhoid; others insect-borne, e.g., plague and relapsing fever; others, again, being such infections as small-pox, chicken-pox, and measles. In spite of the proximity of these patients in launch and receiving-room, he could recall no instance of cross infection over a period of many months. He ascribed this freedom of cross infection as in part due to (1) the types of disease, (2) the age-distribution of the patients dealt with, (3) protection by reason of previous attack, (4) the brief period during which proximity obtained, and (5) to the fact that the sick

Asiatic almost invariably covers his head with a blanket or garment. He agreed with the President that it was desirable to make the regulations for the working of bed-isolation wards as simple and concise as possible.

PARTICK AND DISTRICT MEDICAL SOCIETY, GLASGOW.

A MEETING of this Society was held on Feb. 21st, Dr. JOHN GRACIE being in the chair.

Dr. J. FERGUSON SMITH read a communication on

Furunculosis.

He said that his remarks were to be limited to the consideration of the state of having boils, as opposed to the treatment of the individual boil. There were two main factors in the production of a boil. One was the presence of pyococci, and the other was the presence of patulous hair follicles or ducts of glands by means of which the pyococci were enabled to reach the corium. Recent work had thrown doubt on the theory that the infecting organisms were those strains commonly found in the skin, and that these, by reason of some exaltation in their virulence, or depression of the resisting power of the host, became pathogenic. Recent work suggested that boils were produced by infection from a previous sufferer, and were due to pyococci quite distinct from those normally found in the skin. Later boils were thus lineal descendants of the primary boil or other septic lesion.

In the treatment of the condition the first essential was to remove any obvious predisposing causes such as scabies, pediculosis, and the friction of soiled clothing. The next was local antisepsis; a wet dressing should never be applied to any septic condition of the skin without the application of a strong antiseptic to the parts each time the dressing was changed. For this purpose Dr. Smith used perchloride of mercury, 1 in 1000 to 1 in 5000, depending upon the amount of inflammation and the texture of the skin; or acriflavine, 1 in 4000 in normal saline. Carbolic was irritating and relatively feeble. As the hands of the doctor and the patient carried the pyococci, attention should be paid to these. If these simple precautions were observed it was rarely necessary to have recourse to vaccines, the success of which was problematical. A vaccine should be autogenous, and given at four- to five-day intervals; an initial dose of 200 million should be gradually increased to one of 2000 million. Dr. Smith had had no good results from colloidal manganese; stannoxyl, he thought, had occasionally a good effect. He had not found that his patients were noticeably "run down" as a class, and while he treated the general health he did not think that such treatment helped greatly in the prevention of the furunculosis, except in cases of such gross disorder as diabetes. In conclusion, he mentioned what he considered to be the sheet-anchor of treatment—the use of X rays. These acted by producing a temporary partial atrophy of the skin glands and follicles, and thus deprived the cocci of their favourite nidus. The method was particularly applicable to localised furunculosis, as on the back of the neck and in the axilla.

SUSSEX THROAT AND EAR HOSPITAL.—The forty-fifth annual meeting of this hospital at Brighton was held on Feb. 6th. It was announced that in March leases of property adjoining the hospital, and belonging to the hospital, terminate, and the necessary legal formalities have been completed for the hospital to take possession. The extension comprises a waiting-hall, two consulting-rooms, a dressing-room, and an isolation ward, and it was announced that the governors had practically the required sum in hand. In-patients during 1923 numbered 663, an increase of 91 over the previous year, and out-patients had fallen from 1320 to 1002, due to the fact that on three occasions during the 12 months the hospital was closed to out-patients owing to infectious diseases.

Reviews and Notices of Books.

ORGANIC ARSENICAL COMPOUNDS.

By GEORGE W. RAIZISS, Ph.D., Professor of Chemotherapy, Graduate School of Medicine, University of Pennsylvania; and JOSEPH L. GAVRON, B.S., Associate in Research Chemistry, Dermatological Research Laboratories, Philadelphia. New York: The Chemical Catalog Company, Inc. 1923. Pp. 570. 35*s*.

THIS book of 570 pages is in the nature of a dictionary, with 1594 numbered references to a bibliography at the end of the volume. The "dictionary," in the present instance, discusses in more or less detail the single subject of organic arsenic. While there are to be found hundreds of original contributions to the chemistry and pharmacology of these bodies, distributed in dozens of scientific journals, the actual books dealing with the matter can be numbered on the fingers—this is certainly true so far as books printed in English are concerned. For this reason the authors deserve thanks for their painstaking effort in bringing the information together in up-to-date fashion. The book is issued under the auspices of the American Chemical Society "by arrangement with the Interallied Conference of Pure and Applied Chemistry, which met in London and Brussels in July, 1919," and thence the launching of this, and numerous scientific and technical monographs, passed by a sifting process to the hands of the Chemical Catalog Co. of New York City.

In the general introduction reference is made to Beilstein, Richter, and Ostwald specifically and the English and French dictionaries (non-specified) as available for study, but we should have liked to see an earlier acknowledgment to "Organic Compounds of Arsenic and Antimony," by Prof. G. T. Morgan, D.Sc., F.R.S. (Longmans, 1918)—the last mentioned is, of course, the English classic on this branch of chemistry—instead of occasional acknowledgment among the 1594 references at the end of the book. We view this failure to refer to an English chemist's classical treatise as unlucky, without any suggestion that it was intentional; but the omission should be rectified in any future editions.

The authors have aimed at including practically every organic arsenical compound reported in the literature up to date, they have consulted almost all the original articles and patents published in the English, German, French, and Russian languages, and there appears at the end of the volume a chapter on chemotherapy comprising 20 pages. The arrangement of the subject-matter in the body of the work is on correct lines, such as a chemist would expect. First there is a historical sketch of 17 pages; the trivalent aliphatic bodies with a little over 30 pages; then the pentavalent with a further 30, and then follow, systematically, unsaturated aliphatic arsenicals, and from page 103 onwards trivalent and pentavalent aromatic compounds, heterocyclic, miscellaneous compounds, and so on to the end.

In the historical sketch it is stated that the first recorded observations of the production of an organic arsenical compound, "Cadet's fuming arsenical liquid," were made in 1760 by L. C. Cadet de Gassicourt, a French military pharmacist working on an arsenical cobalt compound, with a view to making the best sympathetic ink. The events of 1914 and succeeding years make us wonder whether each of the participating nations proposes to keep its pet invisible ink a secret—we have seen nothing printed since the war on the matter. The American historical sketch proceeds almost exactly on the lines of Prof. Morgan's—excepting, of course, that the Englishman stopped in 1918, and, incidentally, has neatly arranged references at the bottom of each page. The subsequent work of Prof. Raiziss himself, Jacobs and Heidelberger, Fargher and Pyman, King, Wieland and Rheinheimer, and others are included in the American work.

Much of the work is of great value, and the result of learning, diligence, and research, but need we have had all that is given us? Let us take a critical example. It is known that manufacturers during the last few years found considerable difficulty in producing a body corresponding with the original neo-salvarsan, when proceeding according to the specifications in the German patent methods. On turning to page 195, we find an entire page devoted to seven different methods, or modifications of a parent method, by which to make novarsenobenzol. These are translations from Deutsche Reichspatente, Nos. 245756, 260235, 263460, 264014, and 271893. Knowing what a German specification has been in the past, and reading what the Medical Research Council recently had to say on the matter, the question was put specifically before a British firm with experience in the difficulty as to whether the methods given in this book would work. They replied (Feb. 11th, 1924): ". . . Though the directions could not be called purposely misleading, our works opinion is that not one of the directions, if followed closely, would give the desired product. One must regard these patent specifications as academic rather than practical, and as we have found it, the actual process of manufacture varies from every one of the patent specifications, and can only be arrived at by experiment and experience." Prof. Raiziss has himself worked on the compound, and has demonstrated the commercial drug to be a "non-uniform mixture of the mono- and di-N-methylenesulfinic acid derivatives of arsphenamin together with uncombined sodium formaldehydesulfoxylate, sodium sulfate and chloride." The page of erroneous patent specification directions might, therefore, have been omitted. We have counted the references to the D.R.P.'s on one page (p. 529) of the 15 pages devoted to the 1594 references. There are 22, in addition to three American and a few French and English. But a young and enthusiastic bench-worker who may think to hit on something novel may be disappointed, for search will probably show that all the *Ausgangsprodukte* are covered and hedged in by a network of patents, the mastery of which alone will cause him to wish he had the brain of a Bradshaw rather than of a Ramsay. There is, however, an advantage in having all these patent specifications collated in book form; they spur on the practical worker to find out how a compound is really made, and conversely how it cannot be made. Those who take out patents not seldom keep a "modicum" up their sleeves.

We congratulate Prof. Raiziss and his associate on their work in the chemotherapy chapter—and indeed on the entire book; but they do not countenance the most modern view of all, in criticism of Ehrlich's chemotherapy—viz., that a compound like salvarsan owes its activity to its organotropic rather than to its parasitotropic power.

MAN'S MENTAL EVOLUTION, PAST AND FUTURE.

By HARRY CAMPBELL, M.D., F.R.C.P. Lond. London: Baillière, Tindall and Cox. 1923. Pp. 74 + v. 3*s.* 6*d.*

THIS little book gives a survey of the mental progress of man from before the ape-stage to his present state as a social animal. Dr. Campbell follows MacDougall in regarding man's behaviour as essentially instinctive, and accepts Trotter's conception of the herd instinct; but he stresses the influence of intelligence, and decides that the more intelligent the person the more likely is his conception of right or wrong to conform to a code having for its standard the interest of others. This marks the distinction between Dr. Campbell and those who seek the explanation of certain a-social conduct in the influence of unconscious motives—a distinction of practical importance. He rejects the belief in any *élan vital* or "spiritual influx" by which the human race tends to advance intellectually or morally. Survival value is the thing that matters, and selection is still operative in man's moral evolution, so that he is probably becoming better adapted to the restrictions imposed by communal life. Dr. Campbell's thesis is clear and self-contained, but it may be doubted whether his premiss of individual moral evolution would be generally accepted. Morals are a matter of geography, goes the old saying; they are certainly a matter of history, and in overlooking social as opposed to individual evolution the author makes his task more easy but his results less convincing. The book would have been called "materialistic" a generation ago. It reminds us that there are established scientific theories with which modern psychology must be brought into accord.

EARLY TUBERCULOSIS IN ADULTS.

Die Klinik der Beginnenden Tuberkulose Erwachsener. By Dr. WILHELM NEUMANN, Privat Dozent at the University of Vienna. Vienna: Rikola Verlag. 1923. Pp. 158.

IN this monograph the author recounts the signs and symptoms of early tuberculosis in adults, and the means whereby early tuberculous changes can be detected. The subject is one with which every writer on tuberculosis attempts to grapple, and it is usually dealt with on conventional lines, inspection, percussion, auscultation, and the like, being described seriatim in a faithful and plodding manner. The author has, to a certain extent, digressed from this path; when he is conventional, he is helpful to the medical student and general practitioner, and when he is unconventional he has much to say that his fellow specialists will be interested in, and with some of which certain of them will disagree.

It is, perhaps, inevitable that the tuberculosis specialist should come to see signs of tuberculosis in almost every departure from the normal, just as alienists smell insanity in every eccentric trick and habit. Erythrism, or redness of the hair, is a case in point. The author distinguishes four different types of erythrism, and for almost every type the prognosis for tuberculosis is different. The red-blonde, whose hair is everywhere red, may suffer from latent or abortive tuberculosis, but never from phthisis running a malignant course. But such malignant phthisis is very common in the subjects of partial erythrism—i.e., persons with red hair on the pubes and face and in the axillæ, but not on the head. There are two varieties of this partial erythrism, according to the author, and the fourth main type is described by him as "hair disharmony," the possessor of, or sufferer from, which has a fuchsia-red moustache, but normal-coloured hair on his chin and pubes. This type is said to be prone to tuberculous peritonitis. Digressions on observations such as these stimulate research, but it is doubtful if many of them will stand the test of statistical investigations. The author deals almost as thoroughly with other parts of the body as with the hair. Differences in the colour of the iris on the two sides are referred to as degenerative stigmata which may or may not favour tuberculosis. The suggestion that there is more pigment in the iris on the side most affected by tuberculosis is well worth checking by the statistical method, and the value of this book would have been considerably enhanced if the author's correlations of various signs with tuberculosis had been supported by systematic comparative investigations.

BERGEY'S MANUAL OF DETERMINATIVE BACTERIOLOGY.

A Key for the Identification of Organisms of the Class *Schizomycetes*. Arranged by a Committee of the Society of American Bacteriologists: DAVID M. BERGEY (Chairman), FRANCIS C. HARRISON, ROBERT S. BREED, BERNARD W. HAMMER, FRANK M. HUNTOON. Baltimore: Williams and Wilkins Company. 1923. Pp. 442.

THIS is a work which cannot be adequately reviewed after mere perusal. It should be handled daily, in association with active work, before a weighed judgment as to its accuracy and usefulness can be arrived at. The prodigious and amazing energy, the breadth

of reading, and the tireless revision, which must have gone to its compilation, demand admiration for their mass alone. Everyone will admit that bacterial nomenclature is extremely unsatisfactory, and that in labelling such diverse forms as the organisms of the colon group, the spore-forming anaerobes, and the tuberculosis organism by the common name of bacillus we are reaching back to the very early and primitive days of the science. He who ventures to break fresh ground and propound an acceptable nomenclature is, however, venturing into a quaking bog. To the conservative British bacteriologist the book is at once a revelation and cause for distress. Gone are the time-honoured names and the traces of time-hallowed investigators which have always clung about them. *B. typhosus* (Eberth) finds no place in the index and has suffered transmogrification into *Eberthella typhi* (Eberth-Gaffky), Castellani and Chalmers. That reform and progress are both necessary and inevitable is a platitude, but we are not convinced that it is along the rigid lines laid down by our American colleagues that the most fruitful changes are to be made. In the end we shall probably be inconsistent, and whilst clinging to our old friends, such as the gonococcus, the tubercle bacillus, and *B. coli* (Escherichia coli), in other groups such as the spirochætes, we may adopt new suggestions.

It would greatly aid reference in this work if page-headings gave information as to the material dealt with instead of monotonously repeating the title of the book. An enormous number of species is included, some 850 odd being described, and we are dubious as to the advisability of lending countenance to the perpetuation, with specific rank, of saprophytic forms which have no commercial, pathological, or biological importance. Those who in the past have catalogued endless intestinal or other organisms upon such slender bases as sugar reactions, which probably are almost infinite in their possible combinations, have rendered an ill-service to bacteriology, and the the perpetuation of this kind of folly is quite undesirable. A short note upon the existence of such forms without detailed description would save much space for more important micro-organisms. The book contains no list of synonyms; no doubt these are intentionally excluded to enforce adherence to the nomenclature put forward. A valuable contribution to its subject, this work will doubtless find its way into all bacteriological laboratories; but it seems to prove the impossibility of its mission—the application of a binomial to the adequate designation of every known organism. Is the attempt worth it? We think not. Words are not so precious that so vast an amount of labour should be expended in bolstering up this botanical fetish.

PHARMACEUTICAL AND FOOD ANALYSIS.

A Manual of Standard Methods for the Analysis of Oils, Fats, and Waxes, and Substances in which they Exist; together with Allied Products. By AZOR THURSTON. London: Chapman and Hall, Ltd. 1923. Pp. 416. 21*s*.

THE title of this work is misleading, as it deals in general with the analyses of oils, fats, and waxes, as set out in the subtitle. Until the preface is read, there is no indication that the subtitle constitutes Part I., Part II., dealing with the analysis of the more common drugs and foods, being now in preparation. In future editions we would suggest that the division into Parts I. and II. should be made clearer or that other appropriate and distinctive subtitles be adopted. The first four chapters are concerned with polariscopes, refractometers, and the determination of specific gravity by various means, and general methods of analysis. Subsequent chapters are devoted to the commonly occurring oils, fats, and waxes, dairy products, flesh foods, eggs and egg substitutes, and the volatile oils. At the end of each section a bibliography up to date (1922) is attached, comprising the prominent American and English journals, all original articles appearing in these journals being included regardless of their importance. The absence of a name index is to be regretted.

Apart from these criticisms, the book is undoubtedly good, and it is a useful contribution to this important branch of chemistry. Indeed, this is to be expected from Mr. Thurston's long official association with American Food and Agricultural Departments. Not the least valuable portion is the list of adulterants based on the Federal notices of judgments, so far as these have a bearing on the subjects dealt with in this volume. It is obviously important that the analyst should know what adulterants are being used.

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them.

X.—OBLIGATIONS TO HIS PATIENT.

BY JAMES NEAL, M.R.C.S. ENG.,
GENERAL SECRETARY OF THE MEDICAL DEFENCE UNION.

Aegroti salus suprema lex.

IT is the duty of a medical practitioner to place the interests of his patient above all other considerations, and to do his utmost to promote his patient's welfare. The British Medical Association has expressed the opinion "that a medical practitioner should not under any circumstances disclose voluntarily, without his patient's consent, information which he has obtained from that patient in the exercise of his professional duties." It may be said that this opinion is universally accepted.

Implied Warranty and Contract.

The fact that a medical practitioner is registered is an implied and public warranty on his part that he possesses the requisite ability and skill, and in every case that he attends he is legally bound to employ a reasonable amount of knowledge, skill, and care. In the absence of a definite arrangement that he shall not be paid, a medical practitioner is entitled (unless restrained by such a by-law as that of the Royal College of Physicians) to be reasonably remunerated for any professional services he may render. There is, however, nothing to prevent a medical man from attending a patient on the understanding that his services shall be gratuitous. It is commonly understood that a medical practitioner is at the beck and call of anyone who chooses to send for him. This is not the case. There is no law to compel a medical man to attend a patient, apart from any contractual obligation he may have accepted, but if he once undertakes to do so, he must not go back except at his own risk. Even if he is attending a case gratuitously, and wishes to withdraw from it, he should give the patient a reasonable opportunity of obtaining other medical assistance before he ceases attendance.

The relationship between a medical practitioner and his patient is one of contract, though usually the contract is only implied by the rendering of services by the medical practitioner for which he can claim to be reasonably remunerated. It is as well that the scale of such remuneration should be agreed with the patient at the outset, whenever possible, to avoid misunderstandings. It should never be forgotten that a medical practitioner has no right to do anything to a patient without his consent, or, in the case of a child, without the consent of the parents or guardians, save in emergencies when the medical practitioner must exercise his discretion. This applies not only to operations, but to mere examinations or any form of

treatment. When surgical operations are necessary, the ideal thing is to obtain the patient's consent in writing, and as the full extent of the operation frequently cannot be determined beforehand, it is well for the surgeon to get a written authority to exercise his discretion when the exact conditions are ascertained; but in practice this ideal can but seldom be attained. No surgeon can exceed the extent of his authority without some risk of laying himself open to a charge of assault.

Allegations of Negligence.

Everyone engaged in active practice, whether as general practitioner or as consultant, is liable in the ordinary course of his daily work to false charges, sometimes very serious, of professional negligence or incapacity. However well-informed a medical practitioner may be in his professional work, and however careful he may be in his treatment of a patient, he is always at the mercy of any person who may feel aggrieved. All that seems necessary from the patient's point of view as a foundation for an action for negligence or malpraxis is for him to conceive the idea that however serious his disease or injury may have been, he ought to have made a more rapid recovery or obtained a more perfect result. He bolsters up his claim with items for loss of wages, loss of health, nervous shock, expenses for visits to the seaside, massage, and the like, hoping that the practitioner will submit to his demands for compensation rather than face the ordeal of a public trial. No doubt it is a great temptation to settle a claim of this kind by a small monetary payment, and so avoid the publicity necessarily involved in court proceedings, but every case that is fought and won will help to protect other practitioners from having to face similar claims.

The majority of the allegations of negligence are set up as a counter-claim against the payment of professional fees. Fortunately, it is not sufficient for the plaintiff merely to contend that he has received no benefit from the treatment. If a practitioner has exercised due care and ordinary skill, he is entitled to be paid, although his treatment is unsuccessful. The mere employment of a medical practitioner does not imply a contract to perform a cure, but only that the medical practitioner will exercise reasonable care and skill, having regard to his position and standing in the profession.

But a patient is entitled to recover damages in respect of any injury caused through neglect or lack of skill on the part of his medical attendant, and it is a question for the jury in each case to say whether any injury is attributable to the want of a reasonable and proper degree of care and skill in the practitioner's treatment. If the jury finds that there was a lack of care and skill on the part of the medical practitioner, having regard to his status and experience, he will be held liable, but he will not be answerable merely because some other doctor might possibly have shown greater skill and knowledge.

In other words, a medical practitioner is not expected to show the highest possible skill, but he must have that amount of skill which should be possessed by a practitioner in his position. Accordingly, the degree of skill expected from a specialist will not be required from a country practitioner remote from teaching centres.

How to Meet Such Allegations.

A medical practitioner who is so unfortunate as to have his professional work called in question should make no reply to the allegation until he has been properly advised; it is impossible to emphasise too strongly the great protection which a practitioner derives in all such cases from membership of an experienced defence organisation. Too often when such cases come under notice, it is found that the position has been gravely prejudiced by injudicious letters which the practitioner has written without recognising their possible effect, and in too many instances without even keeping a copy. Errors in diagnosis are not necessarily due to negligence, and no guarantee is given or implied that a medical practitioner will diagnose correctly the ailment from which his patient is suffering. Questions of this kind frequently arise in connexion with the notification of infectious diseases, and it is seldom that an adverse verdict has been given.

Special care is necessary in dealing with cases of criminal wounding, as, if the patient should die, the person who caused the wounding may be charged with murder, and may set up the defence that but for negligence and unskilful treatment the original wound would not have been fatal. In all such cases the medical practitioner should be prepared to justify every step which he takes, and in grave cases should consult whenever possible with an experienced colleague. The most careful notes should be made in writing of the patient's condition when first seen, and his progress from day to day, with full particulars of all treatment afforded.

The introduction of X rays as an aid to diagnosis, and as a method of treatment, has given rise to many claims in respect of injuries received as a result of their use. Negligence may be alleged either with regard to the application of X rays, or even in not resorting to them. The desirability of requiring a patient to sign some form of acknowledgment of the risks attaching to the use of X rays, and his willingness to take such risks, has been frequently discussed, but no such acknowledgment would protect a practitioner from an action being brought against him for alleged negligence, and it might even be argued that its possession might have made him less careful than he otherwise would have been.

It must be remembered that a surgeon is held responsible for negligence on the part of those helping him at an operation. At such a time the surgeon is supreme, and assistants and nurses, although employed by a hospital at which the operation is being performed, cease for the time being to be servants of the hospital, and take their orders from the operating surgeon alone. The hospital does not as a rule incur responsibility, provided it has exercised due care in the selection of its medical and nursing staffs.

A Word about Gifts.

Owing to the peculiarly intimate relation of a medical practitioner to his patient, any business transaction between them must be fair and above-board, and it is essential that the patient be fully aware of what he is doing. There must be no possibility of a suspicion of undue influence on the part of the medical practitioner for his own benefit. This necessarily applies to any gifts from a patient to his doctor, and even to wills, whereby the medical attendant will benefit, except that in the latter case undue influence cannot be presumed, but must be proved, in order to invalidate the will. The influence which a medical practitioner necessarily and naturally possesses over his patient would not of itself be a ground for setting a will aside, unless it could be shown that the testator was coerced into doing what he did not really desire to do.

PRESENTATIONS TO MEDICAL MEN.—The retiral from practice of Dr. James Duffus, of Auchenblae, Kincardineshire, is fittingly commemorated in a public testimonial, subscribed by his many friends in the district which he served for 40 years. In addition to his professional duties, which won for him the highest esteem, Dr. Duffus has always taken an active part in the public, social, and recreative life of Kincardineshire.—A public presentation was made recently to Dr. W. C. Rigby of Adlington, Chorley, Lancs, from members of the local branch of the St. John Ambulance Brigade and other residents in recognition of his public services in Adlington and district. For some 28 years Dr. Rigby has been an enthusiastic supporter of the Ambulance Association, to which he devoted much of his leisure as instructor and examiner.

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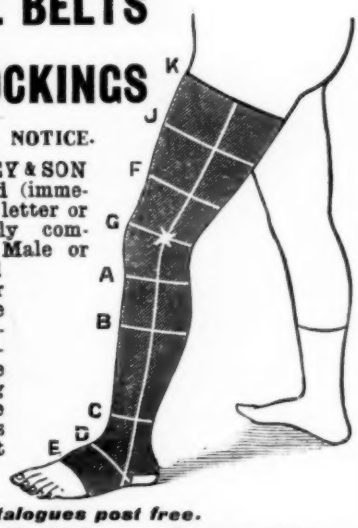

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—*Medical Press*, Feb. 6th, 1924.

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THE LANCET.

LONDON: SATURDAY, MARCH 8, 1924.

HARNETT *v.* BOND AND ADAM.

A SUMMARY is published in another column of the case in which Mr. W. S. HARNETT obtained heavy damages for detention as a lunatic while he was sane against Dr. C. H. BOND, Commissioner of the Board of Control, and Dr. G. H. ADAM, proprietor of the West Malling Private Mental Hospital. There is no doubt of the importance both to the public and the medical profession of the questions exposed in this case, and those who agree and those who disagree with the verdict alike will feel the need for new legislation which has long been overdue and which has been made the subject of definite ministerial promises. As we are informed that there will be an appeal from the verdict, and also that further legal action may be taken by the plaintiff, most of the particular aspects of the case cannot now be reviewed; but the evidence revealed in an unmistakable manner how serious is the responsibility which is laid upon our profession in regard to the certification of lunatics In a case where a jury has found that a terrible wrong has been suffered and that proportionate penalties (if possible) should be inflicted, it is right to express a double sympathy; and this can be done without prejudice to any subsequent proceedings. The paradoxical sentiment is the result of paradoxical law, which imposes upon medical men the duty of saying yes or no to questions that, in the present state of our knowledge, cannot always be met with such definite replies.

The verdict would clearly be wrong if convincing evidence had been forthcoming that the plaintiff was insane throughout his period of detention, but the jury came to a contrary decision with no difficulty whatever, being satisfied that many of the alleged symptoms of lunacy were capable of other interpretation, presumably whether considered separately or en masse; and therefore a large pecuniary compensation became immediately logical. In fact, no money compensation could meet the case. Accepting the definite finding of the jury that the plaintiff was not of unsound mind on the day when he was sent back into detention, and further, that he was not dangerous to himself or others but was fit to be at large, the question of whether those responsible for his detention believed that he was insane, and took all the necessary steps to ascertain that this belief was duly founded, presents to us two difficulties. The first is how the defendants, specialists though they might be, were to arrive at a definite decision of what makes a man a lunatic—that is a more definite decision than their judgment dictated; and the second is what procedure should they have adopted, other than that which they did as a matter of fact adopt, in answer to their convictions. In the evidence for the plaintiff an acknowledged authority was quoted as stating that there was no one who is absolutely sane, it being all a matter of degree. This is the position which influenced the actions of the defendants, and which makes it amazing and horrifying to medical men that the jury should have found that Dr. BOND was aware of the plaintiff's sanity at the time when he was taking measures to return him to confinement. We cannot follow this decision while it is widely admitted that there is no definite criterion of insanity. We have been unable to ascertain what steps can be taken legally to revoke a leave of absence granted to a certified man. This confession of ignorance of the law need not be concealed, when the learned judge has himself expressed surprise on learning that the certified lunatic is not personally made aware of the grounds of his detention. As this point has been made the subject of considerable comment, it ought to be quite clear that the information would not be withheld from the legal representative of the alleged lunatic, while the reticence as far as the certified person is concerned has its foundation in the hope that recovery may ensue. In such a happy event it might reintroduce into family life exactly the trouble which had been surmounted, if the person restored to his relatives should ascertain through whose instrumentality and on what grounds his segregation had been held medically necessary. A patient's continued detention rests not on the certificate, but on his mental state at a particular time.

Whether the judgment on appeal holds good or not, makes no difference to the fact that the lunacy laws must be amended. Medical men cannot face the risk under which, it seems, they lie at present, and for their protection, as well as for that of the public, the sooner these reforms are instituted the better. And within the medical profession the need for schools of psychiatry will now be recognised more fully. Three years ago, at an important meeting of the Medico-Psychological Association, Dr. BOND outlined the necessity that clinics should be held in mental disease in affiliation with general hospitals. He pointed out the relation which such clinics would occupy with regard to other clinical units, and laid stress upon the advantages to the medical profession of acquiring greater skill in the differential diagnosis of mental disorder. This reform, which has been advocated steadily in these columns, would obviate many of the difficulties with which lunacy certification is surrounded. But far more is required; and we welcome the decision of the Prime Minister that, prima facie, there is a case for full inquiry. This inquiry will probably follow immediately upon the result of any appeal, and, we imagine, will lead to vital alterations in the law.

ON WASHING AND ASEPSIS.

IT is one of the earliest recollections of our boyhood that we regarded washing as an effeminate superstition, and now, after many years, we find our instincts vindicated and our views upheld by no less a person than the Assistant Master of the Rotunda. In the important and suggestive article on surgical asepsis which we print on another page Dr. G. W. THEOBALD and Dr. J. W. BIGGER produce strong evidence that prolonged washing, far from sterilising the hands, serves only to bring up more bacteria to the surface, and if, as is usually the case, the hands be then inserted into wet gloves, an emulsion is formed, swarming with organisms ready to escape at the smallest puncture. They would insert "socially" clean hands into dry unsterilised gloves, which they wash and immerse in an antiseptic solution, and they hold that the result is entirely satisfactory. Now, there can be no doubt of the folly of imagining that the hands can be sterilised by washing, however prolonged, and indeed, unless elaborate precautions are taken the practice may be absolutely dangerous. We have known of more than

one case where a severe dermatitis was produced by scrubbing the hands with an infected nailbrush. The smooth surface of a rubber glove lends itself much more readily to mechanical cleansing, whilst it is not injured by the action of antiseptics which would ruin the skin. For the performance of dressings, or minor surgical procedures, and of those complicated obstetric manœuvres where perfect asepsis is a practical impossibility, there can be no doubt that the method suggested is admirable and far superior in actual results to the more complex methods in general use. Moreover, it is so simple that it can be carried out by individuals and under circumstances where the ordinary routine would certainly fail.

There are, however, certain criticisms which we feel bound to offer to the method proposed, since they seriously affect its value for the work of the general surgeon. It is an essential part of the method that some reliance is placed on antiseptics, and in particular on 1/1000 biniodide of mercury. Now, recent work has shown that, in general, mercurial solutions merely prevent growth and do not destroy bacteria. If the mercury is precipitated by means of hyposulphite of soda the organisms will in many cases be found to grow with undiminished vigour. Observers have seen thin fragments of infected tissue incubated in 1/500 biniodide for three months, and at the end of that period a few grains of hypo produced a rejuvenescence as startling as that attributed to salt taken in the morning tea. But no such precaution appears to have been taken in the tests described, and we must for the present feel a certain hesitation in accepting, sine grano salis, the statement made that gloves infected with virulent pus can be sterilised by mechanical washing and the use of dilute antiseptics. In the doctrine of abstention our authors are on much safer ground, and we should have liked to see them carry it somewhat further. The most perfect practitioner of the art we have ever heard of refused to shake hands except in gloves, or to button his own boots, and he never touched coins with bare hands. Needless to say, he had no sense of humour, but his surgical asepsis was perfect. Without going quite so far it would be well that every student should be taught how much easier it is to avoid infection than to remove it. In the ideal clinic no piece of dressing, clean or infected, should ever be touched by the hands, gloved or ungloved, but only by forceps which have just been boiled. Were such a regime rigidly enforced the transference of organisms from one patient to another would become virtually impossible, and this after all is the practical meaning of surgical asepsis.

It is the prevention of transference, with its inevitable corollary of the development of bacteria of exalted virulence, that is the foundation of modern surgery and obstetrics. In the old days surgeons were not even "socially" clean, and wore, we are told, frock coats stiff with the blood of years of practice. We have long got rid of such gross and open sepsis, but it still behoves us to be on our guard. It would be well if surgeons, dressers, and nurses would bind themselves, under a solemn vow, never to touch a dressing with aught but forceps, never to touch infection with a hand ungloved, and never to put a hand where an instrument would do as well. In many a ward asepsis would be enormously improved if washing between dressings were strictly forbidden. Yet there is moderation in all things, and perhaps the dangers even of washing can be exaggerated. It is only over the doors of the laboratories of a certain branch of science that its more advanced votaries have inscribed the motto, "All soap abandon ye who enter here."

THE INVESTIGATION INTO FOOT-AND-MOUTH DISEASE.

THE loss to the agricultural interests of this country caused by the epizoötic of foot-and-mouth disease, now fortunately abating, may be partly realised from the statement that the estimated gross sum involved in compensation amounts already to over £2,900,000. This, moreover, is no true measure of the disaster from the point of view of the farmer deprived of valuable pedigree or dairy stock, and suffering from interrupted farm and dairy business; nor does it take account of the injury to farm hands who have lost employment or of the inconvenience to the general public. The enormous importance to the country of acquiring control of this disease, and the devastating effect of want of knowledge concerning some of its essential features, have now been widely realised by all classes of the community. The actual presence of the scourge has forced all concerned to recognise the need for a thorough inquiry; while at the same time it has counteracted the timidity which shrank from facing the really small but often greatly exaggerated risks involved in conducting experiments with the virus. The personnel of the committee appointed to conduct an inquiry and to initiate and direct research has been announced (see p. 521), and it is to be hoped that before the country has thoroughly recovered from the epidemic the institution of well-planned research will have been faced and accepted, and its safety recognised. We sincerely trust that this time vows uttered in distress will not be put aside when the period of immediate danger is over. It is indeed remarkable that with so serious a calamity as an extensive epizoötic of foot-and-mouth disease hanging continually over the country so little demand for persistent research should have been made.

There is still great uncertainty about many of the important factors producing both initial outbreaks and subsequent extensions of foot-and-mouth disease. The highest authorities express divergent views on such fundamental matters as the possibility that fodder or litter from abroad, even from South America, could carry the infection to this country. Again, in spite of diligent inquiries and a great desire to learn the truth, we are almost entirely ignorant as to how it happens that outbreaks occur in unexpected places, sometimes 50 or 100 miles from the nearest antecedent infected area. An instance is the recent outbreak in Scotland which, according to Sir STEWART STOCKMAN, is only the second such occurrence north of the Border in the last 22 years. No better explanation is forthcoming than the possible transmission by an untraced human being, by birds, or by vegetables from the continent, the source of infection in any case being purely suppositional. It is not so much the unexpected appearance of cases of disease which causes surprise as the absence of definite knowledge whether it is even possible for any of the suggested means of transference to be effective. One reason for our ignorance as to the means of transmission may be the uncertain infectivity of material from diseased animals. Saliva and the contents of vesicles sometimes contain extremely concentrated virus; in other cases these materials appear to be inert. This variation may be strictly dependent on the stage of the disease, as Vallée has suggested, but in any case no "virus" from affected animals, however probable its activity may appear, can be assumed to be virulent without being tested.

Whilst much of the evidence adduced is necessarily inconclusive and circumstantial, the accounts by veterinarians of epizoötics of foot-and-mouth disease, and the means taken to combat them in different countries, contribute suggestive data for further scientific inquiry. In the current number of the *Veterinary Journal* much information of this kind has been collected, together with a brief survey of the present epizoötic. The method of dealing with outbreaks, and the results obtained in Switzerland, by

Prof. M. L. PANISSET, are of special interest on account of the thoroughness of the regulations and the care with which they appear to have been carried out. A stricken farm was surrounded with barbed wire, all ingress or egress of man or animals was forbidden, and small animals such as fowls, cats, and rabbits were destroyed. Nevertheless, though these efforts had a certain effect early in the epizoötic, we are told the spread of disease was not prevented. If, as the small amount of published experimental work suggests, inanimate objects can only retain the virus in an active state for a very short time, then the possible transmission by actually infected birds, rats, mice, rabbits, cats, and the like, becomes a more important subject for inquiry. Some most interesting experiments bearing on this question were published by Prof. J. M. BEATTIE and Mr. D. PEDEN in THE LANCET of Feb. 2nd. These writers are inclined to believe that they infected rats with foot-and-mouth disease by feeding them on the lymphatic glands of diseased cattle. The rats showed vesicles on the tongue and feet, and other rats were infected from them. The disease produced had a striking resemblance to experimental foot-and-mouth disease in the guinea-pig. Unfortunately they were hampered by want of a further supply of virus, and by lack of opportunity to determine by experiments on cattle or sheep whether the infected rats really suffered from foot-and-mouth disease or not.

No statement has yet been published as to the conditions under which research will be conducted through the newly-appointed committee. On those dealing with so complex a task no unnecessary restriction should be imposed. Fortunately it is possible to infect guinea-pigs and to carry on the disease by passage in these animals alone, but it is necessary at times to confirm the diagnosis of the disease in rodents by testing the virus on susceptible ungulates, and space will be needed for keeping and isolating a number of large animals of the kinds most susceptible to the disease. Researches on birds and small mammals can, no doubt, be carried out without risk in properly equipped laboratories, and it is hoped facilities for obtaining virus for this purpose will be given to responsible pathologists who are well qualified and well situated for the conduct of such intricate work. If an experimental farm were established, virus could be given to recognised pathologists, and material of real importance could be tested on large animals; then work similar to that of BEATTIE and PEDEN would be encouraged and brought to fruition. The accommodation necessary for large farm animals would be considerable, and it would be important to avoid clogging the wheels of research by making demands for unnecessary tests. For the purpose of coördinating the associated activities of pathologists in different places the committee will, no doubt, prove efficient. One of the most important and by no means easy duties of an experimental station is the maintenance of a supply of virus. This must be provided for by passage in animals, and also by preservation of a stock of virus in cold storage. The question of "carriers" amongst recovered animals which harbour and distribute the virus, especially in connexion with deep infections of the hoof, is another point to be investigated.

While the natural means of transmission and the measures available to frustrate them are of great importance, especially in this country, the intimate nature of the virus and its possible cultivation in artificial media must not be neglected. The hope implied in this latter inquiry is that means of producing a more certain and lasting immunity than can be obtained by any known method may be discovered. The whole question of immunisation by serum or blood, and the questions of vaccine and serum therapy, are still far from being satisfactorily settled, and it is possible that the efforts of a committee appointed to investigate this one affliction may result in clearing up fundamental points common to many diseases.

Annotations.

"Ne quid nimis."

THE DANGER OF FROZEN SCHICK SERUM.

WE have received through the Registrar of the General Medical Council a copy of the following despatch from H.M. Consul-General at Boston, U.S.A.:—

SIR,—I am not aware whether the discovery, announced in to-day's local Boston press, that Schick serum becomes poisonous when frozen, is generally known in medical circles at home, or how far the use of this serum for inoculation against certain diseases is practised in the United Kingdom. It therefore appears advisable to report the alleged discovery which is stated to have arisen from the poisoning of 19 students at Concord Academy. Freezing, it is stated, destroys the antitoxin in the serum, and leaves nothing but the poison to be administered. It is expected that the effects of the poisoning will only last about two weeks, the patients being kept in darkened rooms for three weeks as a precaution. It is announced that the entire shipment of the serum used is to be destroyed.

British Consulate General, Boston, Feb. 7th, 1924.

This occurrence received notice in the *Journal* of the American Medical Association for Feb. 16th, when the number of affected institutions was given as two and the number of students affected as 44. At the request of the Massachusetts State Commissioner an investigation was made into the circumstances by Dr. W. T. Harrison, of the U.S. Public Health Service, with the help of Dr. Bela Schick, Dr. W. H. Park, Prof. M. J. Rosenau, Dr. Hans Zinsser, and Dr. E. H. Place. It appeared that certain phials of two lots of diphtheria toxin-antitoxin mixture which had passed all the usual tests were exposed after distribution during the recent extremely cold weather to temperatures of 0° F. or lower. Hundreds of other phials of the same lot numbers, not exposed to low temperatures, were used in other cases and produced no unusual reaction. Laboratory experiment showed that while a short period of freezing did not materially affect the toxin-antitoxin mixture, severe freezing for 18 hours apparently caused the antitoxin to dissociate from its combination with the toxin and to assume a changed physical state. The experts consulted viewed the occurrence in the light of a discovery of which note should be taken, but which should in no wise discourage the use of toxin-antitoxin mixtures for protection against diphtheria. The results of the injection of serum which had been frozen could not have been foreseen and no blame was attached to anyone in connexion therewith. The Massachusetts Commissioner added that his confidence in the value of the serum was in no way altered and that experiences such as this, distressing as they must be, should not cause health officers to abandon the use of a valuable preventive measure. At the time of the report all the patients were recovering.

RADIOTHERAPY FOR SARCOMA.

THE Radium Institute in Paris has issued in *Paris Médical* for Feb. 2nd a report, signed by MM. C. Regaud, J. Roux-Berger, J. Jolly, A. Lacassagne, H. Coutard, O. Monod, and G. Richard, on the treatment of sarcoma with the X rays and radium. The chief lesson of this paper is that the term sarcoma covers a very mixed collection of new growths, whose origin, structure, degree of malignancy, clinical evolution, and response to radiotherapy vary so greatly that the first need is for a more accurate classification of this group of growths. But of its malignancy and refractoriness to treatment in most cases there can be no doubt. Of the 62 patients treated at the Radium Institute in the years 1919, 1920, 1921, only 16 were still alive at the beginning of 1923, and the permanency of the recovery in these 16 cases could certainly not be guaranteed. Of the 25 patients suffering from lymphoid sarcoma, eight were treated with the X rays alone, five with radium alone, and ten with the two

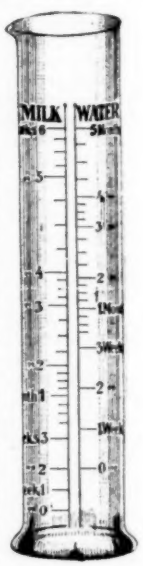
methods combined. There were also two patients who were given combined radiotherapy supplemented by operative interference. Early in 1923 six of the patients in this group were still alive, and of the 19 patients who had died, nine had been rid of their primary lesions, and several had for more than a year enjoyed apparent recovery. Of the remaining ten patients none had achieved local recovery, although some diminution of the primary growth had taken place, and in almost every case there had been appreciable amelioration. It would seem that radium is to be preferred to X ray treatment only in exceptional cases, and that X ray treatment is capable of achieving local recovery in most cases of lymphoma and myeloma. The metastases, which are so very common, presumably start before the successful treatment of the primary lesion is instituted, and this fact is the chief stumbling-block to both radiotherapy and operative treatment. There is another difficulty connected with radiotherapy in sarcoma. Some sarcomas are much more radio-sensitive than others, and were it possible without injury to the patient to make an exploratory excision and identify the histological characteristics of the new growth, radiotherapy could be reserved exclusively for cases which were radio-sensitive. In the absence of a preliminary microscopic examination, radiotherapy is rather empirical, and an exact opinion on the nature of the growth cannot well be formed till its reaction to this treatment is observed. While operative treatment is usually ineffective and often disastrous in cases of lymphoma and myeloma (unless a myeloma of a limb can be removed by amputation) X ray treatment is justifiable in such cases. But operative treatment is to be preferred in cases of fibroplastic sarcoma, because this is usually very radio-resistant.

THE PHYSICIANS' LIBRARY OF PHILADELPHIA.

THE Library of the College of Physicians of Philadelphia enjoys an endowment consisting of some 28 separate "funds" for the purchase of works of especial interest, and the Fund for Rare and Valuable Books has enabled it during 1923 to add to an already incomparable collection of incunabula. "These fifteenth century books," says the learned librarian, Mr. Charles Perry Fisher, "have been acquired for the library without in any way interfering with the purchase of current medical publications." The Philadelphia librarian and his committee have thrown their net widely, and have now included in their list a number of works not strictly medical, such as those of Boethius, the Epigrams of Ansonius, the "Noctes Atticae" of Aulus Gellius, the works of the Christian Father Lactantius, and of others, who were rather doctors of theology than of medicine. We note the very rare first edition, printed in Paris in 1517, of the "Tractatus insignis et exquisitissimus de superstitionibus contra maleficia seu sortilegia que hodie vigent in orbe terrarum," by Martinus de Arles y Andosilla. Two old French works on the care of the teeth and on the medical education of children are of interest considering that they were published at a time when these subjects—by us considered so recent—attracted no particular attention. These are Bourdet's "Soins faciles pour la properté de la bouche, et pour la conservation des dents," published by Mourer at Lausanne in 1782, and Brouzet's "Essai sur l'éducation médicinale des enfans," two volumes, published by Cavelier in Paris as early as 1754. A very interesting English work—considering its early ante-Harveian date—is Walter Charleton's "Three anatomic lectures; concerning the motion of the blood through the veins and arteries; the organic structure of the heart; the efficient causes of the heart pulsation." This was published in London by Kettilby in 1583, when William Harvey was five years old. Non-malignant tumours were in the past constantly mistaken for true cancer, whence such a work as Edward Guy's "Practical Observations on Cancers and Disorders of the Breast, explaining their different appearances and events. To which are added one hundred cases, successfully treated without cutting," London, 1762. The plague was long believed to be contagious; hence Sir Arthur Brooke Faulkner's "Treatise on the Plague, designed to prove it contagious, from facts, collected during the author's residence in Malta . . . in 1813." One work on "anthropology" figures in this fascinating library report. The term was anciently used to mean a description of a man, rather than of man at large, but even so we question whether we can rank under this heading the "Anthropologia" of Magirus (published at Frankfort, 1603), "hoc est, Commentarius . . . . Philipp. Melancthonis libellum de Anima." We take it that the book is not a commentary by Magirus on Melancthon's work, but that both rank as anthropology in the ancient sense. "Anima" as used by Melancthon is a theological term, and does not refer to physical breath. All in all, this great medical library now contains over 140,000 volumes and represents worthily a great tradition.

A NEW METHOD OF RATIONING ARTIFICIALLY-FED INFANTS.

ARTIFICIAL feeding for infants is rapidly becoming an exact science, and the margin of error due to the personal equation is yearly being reduced. The latest advance in this direction has been made by a Danish physician, Dr. H. Trepka Bloch, who has recently published [1] an account of a new method of rationing artificial meals for infants. The method, which is ingenious and carefully thought out, is particularly well adapted for the use of unskilled persons—indeed, it might almost be described as fool-proof. Briefly, it consists in the use of a gauge-glass, 8 inches high (here shown rather less than half-scale [2]), shaped like an ordinary urinometer, on which are engraved two scales, one for milk and the other for water. The divisions on the scales indicate the quantities required for each feed in the 24 hours by a baby of average weight for every week of its age, up to six months in the case of milk and five months in the case of water. The milk is poured into the gauge-glass up to the line on the milk scale which indicates the age of the infant. Water is then poured into the milk up to the line on the water scale on which the same age is indicated. The infant is thus at any given time receiving the exact dilution appropriate to its age, until it is six months old, when it should be taking undiluted milk.



The graduations of the gauge-glass have been calculated on the basis of the curve of weight of artificially reared infants published by Camerer, and are such as to secure that an infant of average weight for its age receives in the 24 hours 100 calories per kilo. of body-weight—this number representing what the consensus of expert opinion has laid down as the optimum requirement of an infant. While the scale is arranged for infants of average weight—that is, for babies weighing between 3 and 3½ kilos. (between 6½ and 7½ lb.) at birth, infants of more than average weight may be given the larger quantities and stronger dilutions calculated for half or one month ahead of their age; and, conversely, a small or marasmic baby may with equal facility be given correspondingly reduced mixtures. Indeed, in many cases the age need not be taken into account at all, since Dr. Bloch has supplied a table showing the calorie value, with a given number of meals, of the 24 hours' ration, with each graduation of the gauge-glass, and all that will be necessary will be to

[1] Særtryk af Ugeskrift for Læger, 1923, Side 124.

[2] The gauge-glass is manufactured by Messrs. H. J. Elliott, 20, Cross-street, Hatton-garden, from whom particulars may be obtained.

Table of Milk Mixtures Determined by the Gauge-Glass.

End of—	Ratio of milk to water.	Each feed: milk water.	Number of meals.	Quantity in 24 hours.	Calorie value of each feed (milk).	Calorie value in 24 hours (milk + sugar).	Weight curve of artificially reared infants (Cameron).
0 week	1-2	10 + 20	8	240	6·5	71	about 3300
1 ,,	2-3	20 + 30	8	400	13·0	136	—
2 ,,	3-4	30 + 40	8–7	490–560	19·5	175–201	—
3 ,,	1-1	45 + 45	7	630	29·2	254	—
1 month	about 3-2	67 + 43	7	770	43·9	368	3683
2 ,,	,, 2-1	82 + 43	7	875	52·7	438	4388
3 ,, } 13 week }	,, 3-1	112 + 38	6	900	72·9	509	5093
4 month } 17 week }	,, 5-1	128 + 37	6	990	83·3	580	5800
5 month } 22 week }	7-1	175 + 25	5	1000	114·2	650	6508
6 month } 26 week }	Undiluted milk.	200 0	5	1000	130·0	730	7278

weigh the infant and to begin the feeding at the line on the gauge-glass corresponding to the number of calories needed for that particular weight.

In the following table 100 g. of milk are assumed to yield 65 calories, corresponding to 3·7 per cent. of fat. Even where the percentage of fat is increased or reduced by 0·5 per cent., the difference will only amount to six or seven calories per kilo.—an error which may quite well be regarded as negligible. The quantity of sugar to be added to the feeds is given as 2 per cent. (two level teaspoonfuls) for each half-litre of milk and barley-water—a proportion used in Denmark for many years—which will approximate to the 7 per cent. of sugar in human milk. 100 g. of sugar are assumed to yield 410 calories, 2 per cent. of sugar giving about 80 calories per litre.

It will of course be self-evident that the quantity given at each feeding will depend upon the number of feeds given in the 24 hours, and that if six to five meals at three- to four-hourly intervals be given, as is usual in this country, each individual feed will have to be considerably in excess of the quantities allowed if the same degree of dilution be maintained. It is here that the only practical difficulty in the application of Dr. Bloch's method, at least by unskilled persons, is likely to be met with. In all other respects the scheme appears to have been devised upon thoroughly scientific lines, the aim having been throughout to systematise the artificial feeding of infants in such a way as to eliminate some of the grosser elements of danger, such as those connected with over-feeding and with a sudden transition to stronger dilutions.

THE TUBERCULOSIS NURSE.

THE lot of the tuberculosis or sanatorium nurse has hitherto been hard, and it is to be hoped that the steps recently taken by the Society of Superintendents of Tuberculosis Institutions will secure her better conditions. At present she has, as a sanatorium nurse, no official status; she may have worked for years in a sanatorium under a fully-trained sister, but if the nurse wishes to take up work in a general hospital she must start from the bottom rung, going again through that disciplinary moulding which, however salutary, is not a process the average woman would care to repeat. This is one reason why it is difficult to obtain a good class of probationer in sanatoriums. Another reason is the comparative monotony of sanatorium work. It would be easier to endure if there were a prospect of some official recognition which would give the experienced sanatorium nurse a generally accepted status. Without such official recognition things are bound to go from bad to worse, only ex-patients or women not acceptable to the general hospitals undertaking the nursing in sanatoriums. Matters could hardly be otherwise; sanatorium routine is dull, lacking the vestments, ritual, and aromas which make a sensuous appeal in the operating theatre as elsewhere. The atmosphere of the sanatorium, barren in more than the physical sense, may fail to keep alive interest in its work. These are some of the considerations which have led the Society of Superintendents of Tuberculosis Institutions to formulate a scheme for the training, examining, and certificating of tuberculosis nurses who fulfil certain requirements. Before a certificate is granted, the nurse must have undergone a period of training for two years, or, if she is on the general register of the General Nursing Council, for one year. She must give evidence of special knowledge of tuberculosis as well as general knowledge of nursing, and she must have mastered the elements of anatomy, physiology, and hygiene according to the syllabus of the General Nursing Council. The examination for the Society's certificate will be held in May and November of each year under conditions calculated to make the test severe and the passing of it a guarantee of efficiency. Undoubtedly, every effort will be made by the Society of Superintendents to keep at a high level the standard of their proposed examination, particulars of which will be found in the February number of *Tubercle*. But the fate and value of the proposed certificate will to a certain extent depend on the attitude adopted towards it by influential bodies in the nursing world, and it is to be hoped that, unless they can produce a better scheme, they will help forward a movement intended for the benefit of a hitherto neglected branch of nursing.

THE RESISTANCE OF INSULIN TO HEAT.

REPORTS have come home from India from time to time suggesting that insulin loses its properties when it is kept in a hot climate. This matter formed the subject of a joint letter from two British firms of manufacturing chemists (THE LANCET, Jan. 12th, 1924). In this it was shown that insulin was unaltered by its exposure to the climate of India, and suggested that the erroneous impression was due to the nature of the rabbit which was used to test the strength of the insulin. The *Indian Medical Gazette* for January, 1924, has just reached us, and sets out the evidence on which the statement was made that the insulin had lost its properties. Major J. Taylor and Dr. A. R. J. Douglas first gave the insulin to a patient who had a very high blood-sugar. The dose of insulin varied from 10 to 25 units, and the fall in the blood-sugar was insignificant; but since carbohydrate had been given at the same time it is not surprising that the blood-sugar did not fall much. As the experiments on man seemed unsatisfactory the insulin was tested out on rabbits. Although 50 units were given to a starved rabbit, the blood-sugar did not fall and the animal was quite unaffected, whereas 3 units will send a rabbit into convulsions in England. On this animal evidence it seemed certain that the insulin had lost its potency. But when the British Drug Houses tested insulin which had travelled to and from India it was found that even the insulin in a half-used bottle was still just as potent as it had been when it was first put up. It was therefore suggested that the Indian rabbit was at fault in its response to insulin and that the insulin was unaltered in the hot climate. An editorial note is added to Taylor and Douglas's paper, pointing out that at least one good clinical

report had already been published in India with European insulin. It seems clear therefore that the fear that insulin may deteriorate in hot climates is unfounded, that the error arose partly from the fact that an unsuitable patient was first tested, but mainly because the rabbit in India behaves differently from the rabbit in England. Diabetics who intend travelling to India and other hot climates may rest assured that the insulin will retain its virtues.

THE POPULATION OF SCOTLAND.

THE former volume embodying the result of the thirteenth census enumeration in Scotland was preliminary, giving simply the population figures of the more important administrative divisions of the country. The present volume [1] gives detailed information for these divisions respecting ages of the population, conjugal condition of persons aged 15 and over, orphanhood, birthplaces of the population, Gaelic-speaking population, and housing conditions. The total population of Scotland now approaches 5 millions; its actual increase between 1911 and 1921, owing largely to war conditions, having been only 2·6 per cent., as compared with 6·5 per cent. in the previous decade. Another reason for the lowered rate of increase is the decline of the birth-rate, and this is illustrated also by the increasing average age of the population, which for both sexes was 28·0 in 1911, and had become 29·6 years in 1921. Five full-page charts of age-distribution of the population in 1921 and 1911 show the effect of the war in diminishing the proportion of males aged 20–40 as compared with females and as compared with males at the earlier period. The statistics of orphanhood of all children under 15 have much interest in view of the likelihood of widows' pensions in a not very distant future. Of the nearly 1¼ million children under 15 in Scotland in 1921, 88·8 per cent. had both parents alive, the fathers of 7·2 per cent. were dead, and the mothers of 3·2 per cent. were dead, while 0·8 per cent. had both parents dead. The housing statistics are of great importance from a public health standpoint, and we must express our regret that the systems of tabulation of this important section of census results in the English and the Scottish reports are not completely identical, with the result that the path of the social inquirer desiring to make comparisons is rendered unnecessarily difficult.

THE OXFORD UNIVERSITY PRESS.

THE Directors of the Oxford University Press celebrated with an important luncheon party, on Shrove Tuesday, the removal of their London head-quarters to Warwick-square, where the new buildings will be known as Amen House, in reminder of their previous location at Amen Corner. The Oxford University Press has been in existence for some 250 years, its first duty being to supply to the public bibles and prayer-books. This business was first transacted from the University, but late in the eighteenth century a warehouse was opened in Paternoster Row, and the trade was conducted from that centre in the City for a hundred years, at which period—namely, about 1870—the University Press began to take its place in the general publishing trade. At this time Dean Kitchin and Dr. Bartholomew Price, the Master of Pembroke College, Oxford, were in succession secretaries to the University Delegates, the authorities of the Press, and Mr. Henry Frowde was manager of the Bible Warehouse. Kitchin introduced the Clarendon Press books, edited by himself and famous scholars like Skeat and Aldis Wright, and the secular publications, which for a few years had been published for the University by Messrs. Macmillan, were now taken over under Frowde's management. No one needs to be reminded of the high place which the Oxford University Press was now taking in the publishing world at home and abroad, and under the direction of the present publisher, Mr. Humphrey Milford, these activities have been extended in many directions, so that the general catalogue of the Press now contains a description of some 10,000 books, a total which is daily increased.

At the luncheon to celebrate the opening of the new buildings the Chancellor of the University of Oxford, Lord Curzon, presided, and was supported by the Archbishop of Canterbury, Lord Balfour, Mr. Asquith, the Bishop of London, the Bishop of Ripon, and the Vice-Chancellors of Oxford, Cambridge and London, while the guests numbered the heads of the great publishing houses and many leading persons in the literary and scientific world. The speeches were from different aspects fully informative of the great work which has been done by the Oxford University Press throughout its long existence. The Archbishop of Canterbury pointed out that apart from moral influence exercised by the wide publication of the Scriptures, scholars owed a great debt to the University Press for the publication of works that could not in themselves ever be remunerative, while Mr. Asquith, in a serious but cajoling speech, described the successful efforts of the Press as a development of a system of pooling, under which the publication of popular classics, and even of children's books, provided the funds to defray the issue of large works with less public appeal. Lord Curzon, in replying for the Press, was very happy in his humorous presentation of the merits of the University of Oxford over the University of Cambridge, while he signalled out for particular mention as the result of the work of the Oxford Press the new Oxford Dictionary of the English Language, the new edition of Liddell and Scott's Greek Lexicon, and the continuation of the Dictionary of National Biography. He thought that the Archbishop laid undue stress upon the publication of unremunerative or erudite work, and assured Mr. Asquith that the Press would publish lyrics by himself, a romance by the Archbishop, or a detective novel by Lord Balfour. He joined with the proposers of the toast to which he was replying in testimony of the excellent printing and format of the productions of the Press, and to the admirable work done by Mr. Humphrey Milford, the University publisher, and his colleagues. He concluded his speech by proposing the health of Lord Balfour as the ideal Chancellor of the "second ideal university," a challenge which Lord Balfour accepted very happily, by pointing out that the new edition of Liddell and Scott must pay its debt to such Cambridge scholars as Richard Jebb, and that the issue by the Cambridge University Press of famous English poets had provided the best material for the Oxford Dictionary of the English Language.

THE MEDICAL AND DENTAL REGISTERS.

THE Medical and Dental Registers for 1924 reach us on March 4th. The number of names added to the Medical Register during the year 1923 was 2482—far the highest number on record—distributed as follows: England, 975; Scotland, 878; Ireland, 385; Colonial, 238; and Foreign, 6. During the same period 105 names were restored to the Register and 923 names removed; 648 on evidence of death, 1 on ceasing to practise, 270 on non-response to inquiries, and 4 by direction of the Council. The total number of names on the Medical Register on Dec. 31st, 1923, was 48,140. The additional names account for the increased number of pages in the Register itself, the only substantial addition to the preface being the text of the Dentists Act of 1923. The Warning Notice has been shortened by omission of a section dealing specially with dentists, which has now been transferred to the Dentists Register. The Dentists Register contains 13,473 names, being 711 more than last year. During 1923, 1488 names

[1] Census of Scotland, 1921. Report on the Thirteenth Decennial Census of Scotland. Vol. II. H.M. Stationery Office, Edinburgh. 20*s.* 9*d.*

were added by registration and, of these, 614 were registered with British qualifications, and 867 registered under the Dentists Act, 1921. Colonial registrations numbered 6 and Foreign 1. During the same period 484 names were restored to the Register and 1261 removed: 207 on evidence of death, 1 on ceasing to practise, 794 on failure to renew the annual certificate, 255 on non-response to inquiries, and 4 by direction of the Council. Contrary to expectation, the total number of names on the Dentists Register has been far more than kept up. In response to a request from many quarters for a list of dentists practising in various localities, the Dental Board has in preparation a list showing under each town the names of the dentists practising therein. For this year the list will be published separately from the Register at 3*s.* 3*d.*, post free. Enclosed in the Dental Register is a pamphlet containing the names of dental companies—that is to say, of bodies corporate carrying on the business of dentistry on Jan. 1st, 1924. At the same time the usual list reaches us of medical and dental students registered during the year 1923, the total number so registered being 545 medical and 107 dental. The figures in each case are for their smallness without parallel since 1888, and in the case of medical students without parallel at all, being less than a third of last year's entry.

The Provisional Committee of the American Hospital in London is now ready to receive patients at their temporary headquarters, Manor House, 47, St. John's Wood Park, N.W. 8, near Marlborough-road Station. The patients are limited to American citizens, American wives of British subjects and their children. Applications for the admission of patients, and all communications relative to the hospital, should be directed to Mr. Philip Franklin, F.R.C.S., Medical Director, 27, Wimpole-street, London, W. 1. (Telephone: Mayfair 868.)

THE following lectures will be delivered at the Royal College of Physicians of London, Pall Mall East, during March and April, at 5 P.M. Lt.-Col. Glen Liston will deliver the Milroy Lectures on March 11th, 13th, 18th on the Plague. The Goulstonian Lectures will be given by Dr. Leonard G. Parsons on March 25th and 27th, and April 1st on some Wasting Disorders of Early Infancy, while the Clinical Features of Foreign Bodies in the Bronchi will be dealt with by Dr. Thomas McCrae in three Lumleian Lectures on April 3rd, 8th, 10th.

THE DOMINIONS HOSPITALITY COMMITTEE.—The Dominions Hospitality Committee, announced last week as in process of formation, is now nearly complete. The purpose of the Committee is to offer welcome and to extend hospitality to all British medical men visiting London during the Empire Exhibition this year. The following have consented to serve on the Committee:—President: Sir William Hale-White (President of the Royal Society of Medicine). Vice-President: Sir Bruce Bruce-Porter (President of the Hunterian Society). Sir Humphry Rolleston (President of the Royal College of Physicians); Mr. H. J. Waring (Vice-Chancellor, University of London; Vice-President of the Royal College of Surgeons); Surgeon Vice-Admiral J. Chambers, R.N. (Medical Director-General, Navy); Maj.-Gen. Sir William Leishman (Director-General, A.M.S.); Air Commodore D. E. Munro (R.A.F.); Mr. C. P. Childe (President of the British Medical Association); Dr. Herbert Spencer (President of the Medical Society of London); Sir William Willcox (President of the West London Medico-Chirurgical Society); Dr. Dudfield (President of the Harveian Society); Dr. Crewdson Thomas (President of the Chelsea Clinical Society); Mr. J. Cunning (President of the Australian and New Zealand Medical Society in England); Mr. Donald Armour (Canada); Dr. H. A. Ellis (Australia); Sir John MacAlister (Secretary, Royal Society of Medicine); Sir Squire Sprigge (Editor of THE LANCET). Hon. Secretaries: Mr. A. E. Mortimer Woolf (Hon. Sec., Hunterian Society); Mr. E. T. Milligan, O.B.E. (Hon. Sec., Australian and New Zealand Society in England). The address of the hon. secretaries for all correspondence is 1, Wimpole-street, London, W. 1.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

LXI.

THE TREATMENT OF MALARIA AS MET WITH IN ENGLISH PRACTICE.

THERE are three forms of malaria, which, though possessing several cardinal features in common, are caused by three distinct parasites—the benign tertian, the quartan, and the subtertian (sometimes also known as the malignant). The clinical symptoms produced by these three parasites vary very considerably, and it may be said that, though the pathology and treatment of the two first-named varieties are similar, that of the subtertian differs very considerably. The clinical states produced by malaria which may be encountered in English practice are due either to benign or subtertian parasites. It is therefore important to realise that the term "benign" as used in this sense is in many ways a misnomer, for, though not actually dangerous to life itself, the benign parasite may cause considerable disability, and, owing to its proclivity to relapse, it is much less amenable to quinine therapy than is the subtertian.

Diagnosis.

The diagnosis of the main forms of malaria rests upon the detection of the parasite in the blood by means of the microscope. There are certain definite morphological features by which the parasites may be distinguished in stained blood films, but difficulty may be experienced in differentiating the youngest or ring forms of parasite which are found in the blood during the course of a febrile attack.

There is a widespread idea which appears to rest upon inadequate foundations that the parasites of malaria appear in the blood-stream in sufficient numbers to be recognised under the microscope only during the febrile paroxysms, but this is by no means the case. It is true that they are the more readily demonstrable, but they are present also during the apyrexial periods when the immature forms of the parasite can be found, if the films are searched thoroughly by a skilled microscopist. In the physical examination of malaria one may be guided by the anæmia so often associated with the disease, as well as by the splenic enlargement, but neither of these (which are usually considered cardinal signs) may be present. Obvious anæmia may be altogether absent in the pernicious attacks of the subtertian infection which are so dangerous to life, nor may the spleen be palpable. The absence of these two signs should not prevent one from examining the blood, which constitutes the only absolute guide to diagnosis.

The symptoms of benign tertian malaria are generally sufficiently obvious in the acute stage; the fever it evokes is sudden, severe, and of short duration; it is accompanied by the usual phenomena of rigor and sweating, but there are other cases in which a pyrexial attack does not develop; the patient may then experience a transient malaise, slight shiverings, or headache. As a general rule, it is the latency of the benign parasite and its liability to recrudesce at any period—it may be for four years—from the time of the original infection, which renders it such a particularly annoying and disabling disease. Months may pass between particular attacks, but after undue exertion or exposure to cold the patient may be struck down again by fever.

The symptoms of the subtertian infection are entirely different. As a general rule, the clinical symptoms are more insidious in their onset, the attack of longer duration, of less dramatic effect, but considerably more injurious to health. The clinical guises which subtertian malaria may assume are very numerous. It may produce extremely acute pernicious symptoms and death within a very few hours. Again, the symptoms may be mainly nervous in origin,

eventuating in mania, delirium, coma, and even epileptiform convulsions; they may be abdominal—dysenteriform or choleraic. There may be no pyrexia at all, the patient may complain of loss of appetite, nausea, and dyspepsia; yet such an individual is liable at any moment to the onset of a sudden pernicious attack, or, it may be, to the supervention of blackwater fever, which is now recognised as a complication of this form of malaria. The blood of individuals returning from the tropics, whatever their complaint may be, should invariably be examined for the subtertian parasite, and should it be found, the case should be regarded in a serious aspect and the infection as a potential danger to life itself.

Treatment.

There is only one specific drug in the treatment of malaria, and that is quinine. Considerable doubt has been cast upon this question during and since the war, mainly occasioned by the failure of quinine therapy to prevent relapses in the benign tertian infections. No drug is absolutely specific, and any hesitation which may have arisen on this point has its origin in failure to appreciate the limitations of quinine therapy.

As soon as a diagnosis has been arrived at, quinine should be given, and it must be exhibited in such a manner that it can be absorbed, and, moreover, it must be continued over a considerable period of time. Whenever possible quinine should be given by the mouth, and only in cases of persistent vomiting or in the severe or pernicious forms of the disease should the drug be injected.

Benign Tertian.—As soon as the patient commences to perspire quinine should be given in solution in 10 gr. doses three times a day after food. The sulphate and the hydrochloride are the two salts of quinine most frequently prescribed, the latter, being more soluble, is preferable. It may be given as follows:

Quinine hydrochlor.	gr. x.
Acid. hydrobrom. dil.	♏ ii.
Syr. aurant.	drm. i.
Aq. chloroformi	ad ½ oz.

The addition of the hydrobromic acid is designed to assist in the solution of the quinine, and has the reputation of preventing the disagreeable tinnitus which results from the absorption of the drug. In the case of an adult this dosage of quinine should be persisted in for the next week and in all probability the succeeding attacks will be thereby prevented, but thereafter, with a view to preventing the recurrence of fever, the patient should persist in quinine therapy for some considerable time. It is usual to reduce the quinine to 20 gr. a day in the second week, and subsequently to 10 gr. a day for the next two and a half months; this is what is generally termed anti-relapse treatment. The only sound method hitherto devised to effect this purpose is the regular and constant exhibition of small doses of quinine over a long period. Should this be neglected the parasite will most certainly recrudesce and numerous relapses result.

Quinine sulphate in pill form as a means of curing malaria or preventing relapses should be avoided. Quinine is only readily absorbed when the intestinal tract is in a healthy condition, therefore it is necessary that the patient should take a mild saline such as sod. sulph. oz. i. once or twice a week while on quinine therapy.

As adjuvant to quinine in the acute fever the following diaphoretic mixture may be given:—

Liq. ammon. acet.	drm. ii.
Spir. æther. nitros.	♏ xxx.
Aq. camph. co.	ad ½ oz.

Arsenic has the reputation of acting as an adjuvant to quinine, and at the same time it assists in combating the anæmia. It is customary, therefore, to prescribe the following mixture to be taken in addition to the quinine, to be taken twice daily:—

Acid. sol. arsenic.	♏ iii.
Ferrous sulph.	gr. ii.
Acid. hydrochlor. dil.	♏ iii.
Aq. ad	½ oz.

There are many preparations of quinine, the most insoluble, such as euquinine and quinine tannate, are tasteless, so their value in the treatment of the disease is doubtful. Cinchona febrifuge, a preparation much used in India, contains the additional alkaloids of cinchona bark, and is given in the same doses as quinine and acts much in the same manner. Esanofele, a proprietary drug much used at present, contains quinine bisulphate and arsenious acid. To some people the bitter taste of quinine is intolerable; to such the hydrochloride may be given in powder form in cachets, or the patient may be directed to drink milk or chew bread immediately after the dose of quinine, both of which methods assist in removing the obnoxious taste.

Salvarsan and its derivatives are considered by some authorities to exert a parasiticidal effect in malaria; it is extremely doubtful whether this is true. Undoubtedly, when used in combination with quinine and given in small doses (0·3 g.) as intravenous injections once or twice a week, they exert a distinct stimulating effect and are thereby useful in the anti-relapse treatment of the benign tertian infection.

Subtertian.—The treatment of cases of average severity is on the same lines as that already described. The patients are usually men who have recently returned, apparently in good health, from the West Coast of Africa or other endemic focus of this infection, who may give no history of fever whatsoever, but in whom suggestive symptoms may appear on arrival in England. The subtertian parasite responds quickly to quinine treatment, and as a rule does not relapse; on the whole, therefore, the treatment of this form is much the more satisfactory.

Should the parasites be very numerous in the blood-stream and the clinical symptoms of the patient very severe, quinine should be injected intramuscularly. For this purpose the bi-hydrochloride salt is chosen. It should be injected in solution deep into the substance of the gluteus maximus in 7 to 10 gr. doses. As a general rule, one or two injections are sufficient; more numerous ones, or those containing larger doses of quinine, are much to be deprecated. Quinine is a tissue poison and may cause extensive necrosis, and, moreover, the danger of "blackwater fever" supervening must not be overlooked, for there is a certain amount of evidence for the view that an injection of quinine may precipitate a hæmolysis of the blood cells and thereby bring about hæmoglobinuria. Intravenous injections of quinine are rarely necessary, save in the comatose or cerebral types. In this case 10 gr. of quinine bi-hydrochloride should be injected intravenously in 10 c.cm. of distilled water by means of a record syringe.

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Recent articles in this series are:—
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Medicine and the Law.

HARNETT v. BOND AND ADAM.

AFTER a trial lasting 16 days before Mr. Justice Lush, a special jury found answers to a series of questions and awarded damages in an action brought by Mr. W. S. Harnett against Dr. C. H. Bond, a Commissioner in Lunacy, and Dr. G. H. Adam, manager of a home for the reception of insane persons at Malling Place, Kent. Damages were claimed on the ground of the alleged wrongful detention of Mr. Harnett as a lunatic. In 1912 he had been an inmate of Dr. Adam's asylum for a few weeks, and on Dec. 12th was allowed to leave it on probation for 28 days. Two days later he went to the office of the Board of Control, where he had an interview with Dr. Bond, who, after conversation with him, detained him and communicated with Dr. Adam by telephone. As a consequence Mr. Harnett was taken back that afternoon to Malling Place in a motor-car by two attendants sent for him by Dr. Adam, after which he was kept there and in other asylums till Oct. 15th, 1921, on which date he escaped, and was afterwards certified as sane by the mental specialists whom he consulted.

A summary of the evidence, speeches, and summing-up follows; the findings of the jury at the conclusion are given here in order that the precise issues raised by the specific points submitted to them may be appreciated.

1. Did Dr. Bond cause the plaintiff to be detained at the office until the attendants came for him?—Yes.
2. Did he cause him to be sent back for the purpose only of his being examined by Dr. Adam or for the purpose of his being detained at Malling Place?—Being detained at Malling Place.
3. Did Dr. Bond cause the plaintiff to be taken back?—Yes.
Did he and Dr. Adam agree, after consultation, that the plaintiff should be sent for and taken back?—No.
Was the taking back entirely the act of Dr. Adam?—No.
4. Was the plaintiff of unsound mind on Dec. 14th, 1912?—No.
Was he fit to be at large?—Yes.
Was he dangerous to himself or to others?—No.
5. Did Dr. Bond honestly believe that the plaintiff was of unsound mind, not fit to be at large, and dangerous to others?—No.
6. Did he believe that the plaintiff had escaped from his brother's charge; and, if so, was that his reason for having him sent back?—Yes.
7. Did he take reasonable care to ascertain the true facts?—No.
8. Did he honestly believe that Dr. Adam had retained the power of retaking the plaintiff back during his 28 days' leave of absence?—Yes.
9. Did Dr. Adam, when he received the telephone message and sent his car, honestly believe that the plaintiff, on Dec. 14th, 1912, was of unsound mind and unfit to be at large?—Yes.
10. Did he honestly believe that it was in the plaintiff's interest that he should be taken back to Malling Place?—Yes.
11. Did he take reasonable care in doing what he did?—No.
12. Did he make it known to the plaintiff that he was liable to be taken if his mental condition required it?—No.
13. Was the detention of the plaintiff at the Commissioners' Office the act of Dr. Bond alone, or was it really the act of both defendants?—Dr. Bond.

The jury assessed the damages at £25,000, apportioned as follows: £17,500 against Dr. Bond, £7500 against Dr. Adam, subject to reduction if it were held that there was responsibility only for the plaintiff's detention by Dr. Adam, to £10,000 (Dr. Bond £7500, Dr. Adam £2500), and alternatively £5000 against Dr. Bond in respect of the detention of the plaintiff at the offices of the Commissioners in Lunacy. The judgment given two days later after argument by counsel will be found below.

Mr. J. B. Matthews, K.C., opening the case for the plaintiff, declared that there was no right whatever on the part of Dr. Bond, any more than there was for any citizen, to detain anyone or give him into custody as a lunatic. The plaintiff had originally been put under restraint upon certificates given by Dr. H. Fisher and Dr. Penfold (since dead) under a reception order signed by a justice of the peace, and an action was pending against Dr. Fisher. The grounds for the first certificate were detailed by counsel. Mr. Harnett, after the death of his first wife in 1908, had believed himself infected with nasal catarrh through germs contracted from her, and an unqualified person had treated him with injections of tuberculin. As a result he had suffered from fever and delirium, and in October, 1912, had been under the care of male nurses. On Nov. 10th he was certified and received at Malling Place. He was certified as deeply steeped in sex problems, but, said counsel, many people, especially since the war, had taken an interest in sex problems and discussed them openly as they would not have done before. The plaintiff had thought that the young should be instructed in sex matters and had issued a pamphlet dealing with the subject.

Mr. Harnett then gave evidence and described having waited from morning to afternoon at the offices of the Board of Control under the impression that his affairs were being looked into, and said that he had been hindered by a clerk when he wanted to go out to luncheon, and was removed at 2.30 P.M. on Dec. 14th. Further, he complained of rigorous treatment at the asylum. He said that he had escaped from an asylum at Aylsham, Norfolk, after complaining without effect to the Lord Chancellor. A number of letters were read addressed by the plaintiff to the Lord Chancellor and to the Commissioners complaining bitterly of his confinement and of his treatment, and the plaintiff, continuing his evidence, said that he had been kicked and struck by a lunatic, that he had complained to a visitor and been threatened by Dr. Adam for doing so. In cross-examination, he said that since Oct. 31st, 1912, he had been perfectly sane. He had never seen any vision or heard supernatural voices since seeing his mother's spirit in 1896. In November, 1912, when ill, he had said, "You people think I am mad." "They did not answer, and I said, 'Spell parallelogram.' They still did not answer and I spelt it correctly." He suggested that his wife and Dr. Penfold had persuaded his brother to have him confined.

Mr. E. Hambrook, a farmer, Mr. A. A. Norman, a solicitor, Mrs. M. A. Girdlestone, a relative, Mr. E. Field, who had attended the plaintiff as a dentist, and the Rev. J. W. Jones, who had been in contact with Mr. Harnett before and during his detention in mental homes, were of the opinion that when they saw him he was sane. Dr. H. J. Bryan was consulted by the plaintiff on Dec. 13th, 1912, and only found him "talkative." Dr. J. S. Risien Russell had examined the plaintiff in November, 1921, and certified him as sane. He considered that his re-arrest and sending back to the home was calculated to have a detrimental effect. Dr. A. C. Morton, instructed by the Commissioners, had visited Mr. Harnett in the mental home at Aylsham and became friendly with him. In June, 1921, he had told a Commissioner that if the plaintiff were at liberty he should not certify him. He admitted, in cross-examination by the Attorney-General for Dr. Bond, that he had reported of the plaintiff that he was talkative and excitable, had some religious mania, and seemed under the impression that he was being persecuted. This was in May and June, 1921. He was then on the border line with regard to religious mania, but the witness could not recall what his delusions were. Dr. T. Hyslop examined Mr. Harnett in November, 1921, and found him capable of managing his affairs.

At the close of the plaintiff's case it was submitted that there was no case for damages, that the only case against Dr. Bond arose out of the detention at the Commissioners' Office, and that Dr. Adam in the circumstances could not have acted otherwise, but the judge held that the trial must go on, and said that there was a prima facie case that Dr. Adam had had

the plaintiff brought back without first satisfying himself that he ought not to be at large.

The Attorney-General, Sir Patrick Hastings, K.C., opening the case for Dr. Bond, referred to the difficulty of devising any means by which more complete protection could be given to any individual detained as insane than had been afforded to Mr. Harnett. But he admitted that after the evidence heard that day there were grave doubts whether any satisfactory method could be adopted to ensure that no person hereafter should remain in an asylum without independent investigation. The Attorney-General suggested as the best protection the visits at stated intervals of an independent doctor at the instance of the alleged lunatic or of his friends. He did not say that the plaintiff had not now recovered, but in 1912 he was undoubtedly insane.

Mr. Neilson, K.C., opened the case for Dr. Adam, who, he said, had received the plaintiff when his actions appeared to be entirely uncontrolled. The plaintiff's mother, he added, was insane.

Dr. Bond described the visit of the plaintiff to the offices of the Board and his own interview with him. He had not been able to find out the object of the plaintiff's visit. Mr. Harnett had talked incoherently in broken sentences, and flourished a bag of money which, he said, he had obtained from his bank. After half an hour he formed the opinion that Mr. Harnett was insane and not fit to be about alone, and had told Dr. Adam so by telephone. In cross-examination Dr. Bond was asked with regard to the flourishing of a bag of money, "What more natural or more joyous than that a man should jingle golden sovereigns in a bag?" and his Lordship asked, "You would not call that a proof of insanity?" To which Dr. Bond replied that he should expect a man to keep his money in his pocket. He did not say that Mr. Harnett had not now recovered. He had not examined the plaintiff, who had given his evidence coherently and sensibly, as to his mental state.

Mr. B. R. Dickson, a land agent, Mr. W. Hyder, a solicitor's clerk, and Mr. C. M. Moir, a reporter, gave evidence as to the plaintiff's interviews with them, and as to such acts as grovelling on the floor, asking Mr. Hyder whether he could spell "parallelogram," and describing visions that he claimed to have seen. To the last-named Mr. Harnett had attributed his condition to an overdose of a vaccine. [These witnesses referred to dates before Nov. 10th, 1912, at which date, Mr. Matthews admitted, the plaintiff was rightly certified.]

Mr. A. Harnett, plaintiff's brother, also spoke to his conduct in that period; he had not visited the plaintiff in confinement, having heard that the plaintiff had threatened revenge against him for putting him under restraint. The plaintiff had said he would spend his last penny in punishing all those who had taken part in putting him away.

Dr. Adam stated that he had joined his father in managing the mental home at Malling Place in 1907, and since his father's death in 1908 had managed it alone. He had received Mr. Harnett on his certification and then thought him maniacal, but had sent him out when his condition improved on an order in the usual form with a proviso for power to take him back should his condition require it. In February, 1913, after his return, he had reported to the Commissioners that the patient was not suicidal but inclined to be dangerous and likely to elude a single attendant. Cross-examined as to various acts of the plaintiff and in each case as to whether the act indicated or proved insanity, the witness answered in the negative, with qualifications, saying that all the facts taken together would be evidence of insanity. The acts referred to included addressing friends and neighbours, asking them to testify to his sanity, claiming a mission to go out and "save souls," asking the Governor of Borstal Prison for leave to address the prisoners, writing a letter to "Dear Postal Official" beginning "Jesus has touched my eyes," and talking incoherently and ramblingly on religious subjects. Mr. Matthews, with regard to the way the plaintiff talked, said, "Everyone from preachers to race-course touts raises his voice to emphasise what he says." The witness answered, "He was shouting, and, in my opinion, was suffering from mania." The witness had reported him later to be "Mentally improved, the acute attack of religious mania having passed off"; the condition then was that religious symptoms remained and "his mind was more or less monopolised by religion." He considered that if the plaintiff believed he had a tuberculous throat after he had been told by a specialist that he had not, that would be a delusion, while he had added that he also thought he had cancer of the throat. He had expressed a desire to go and live with Lord Wolseley. It was suggested by counsel that the plaintiff said: "I should like to see Lord Wolseley to shake hands with him and say 'Lord Wolseley, your sword is untarnished.'" The witness did not remember this, but admitted that an explanation might be found in both the plaintiff and Lord Wolseley believing in the efficacy of prayer.

Dr. H. Fisher gave evidence as to having seen the plaintiff on Nov. 9th, 1912, and having certified him as of unsound mind. Cross-examined as to the symptoms connected with religion, and having said that the people living with the patient were not the best judges of his state, he was asked, "So it is the doctor who is to be the ultimate judge," and replied, "I am afraid we are often drawn into this kind of thing against our will." The plaintiff's actions most certainly indicated insanity. Asked by the judge what made a man a lunatic, he answered, "Laying undue emphasis on circumstances which in ordinary life would be of no moment." The offer to preach to Borstal prisoners should be taken in conjunction with other matters. The required examination of a patient did not necessarily involve asking questions, the word used being "observe." He had gone to the examination with a perfectly open mind.

A former head attendant at Malling Place described bringing the plaintiff back from the offices of the Board, and said that he then appeared worse than when he left. He had not been treated badly or threatened.

Dr. T. Claye Shaw, visiting physician at Malling Place, deposed to having had an interview with Mr. Harnett there on Nov. 19th, 1912, and having had no doubt of his insanity, and as to a delusion with regard to a plot against him. He said that excitement in relation to insanity was a question of the degree of excitement shown. He was cross-examined generally as to his experience of the correctness of certification in other cases within his experience.

Dr. Ludford Cooper had been called in by Dr. Penfold to see the plaintiff in October, 1912. While the plaintiff was out on probation in December, 1912, he had found him outside his house and had asked him into his consulting-room. Arrived there, Mr. Harnett had at once fallen on his knees and prayed aloud, following him across the room still kneeling. Beyond the words "Jesus Christ" he was incoherent, and afterwards got up and talked about a plot. The witness had no doubt that he was insane. He had communicated with Mr. Harnett's solicitor and with Dr. Penfold. Later he had met the plaintiff at Malling Place when visiting another patient and Mr. Harnett had shaken him cordially by the hand and asked him "How do you spell parallelogram?"

At this point Dr. Fisher was recalled and was shown a receipt which he acknowledged had been given by him for fees for attendance on Mrs. Harnett, the plaintiff's wife. He had made a statement under cross-examination to the effect that if Mr. Harnett had said that he (the witness) had ever attended Mrs. Harnett, he would have treated it as a delusion. He now withdrew that statement, and was severely censured by the judge, who characterised the evidence as given to help in establishing the plaintiff's insanity.

Dr. Cooper, further cross-examined, said that the plaintiff had referred to something of a painful and delicate nature affecting his wife, and might have suggested that that was the reason for his being put away. He might have dropped on his knees and in

that position related what was on his mind. The Attorney-General offered to go into the matter affecting Mrs. Harnett by calling her as a witness. He was chiefly concerned with the state of the plaintiff's mind in December, 1912.

His Lordship said that he should ask the jury whether the plaintiff was insane on Dec. 14th.

Dr. A. I. Webster said that on Dec. 13th, 1912, Mr. Harnett, to whom he had never spoken before, called on him, and said excitedly, "Dr. Webster, you are a deeply religious man; you believe in the Lord Jesus Christ." He knew of no reason for this, and considered the plaintiff to be of unsound mind. In cross-examination he admitted having read the lessons in church, of which the plaintiff might be aware. He knew that the plaintiff had been in an asylum.

Mr. O. Dickinson, secretary to the Commissioners in Lunacy, gave an account of the visit of the plaintiff to the Commissioners' offices on Dec. 14th, 1912. He looked wild, seemed excited, and was very talkative. The witness described the removal of the plaintiff. There was no reference to the plaintiff's condition in the memorandum made of the visit, but it was mentioned that he had escaped from his brother's charge. He told the judge, in reply to a question, that he could not account for this. His Lordship said, "I attach the very greatest importance to it."

Dr. E. S. Pasmore said that in 1913 he was medical superintendent at Croydon Mental Hospital, and in February of that year fetched the plaintiff from Malling Place. On the way to Croydon Mr. Harnett, in reply to questions, said he had been poisoned with tuberculin and it went to his head. He voluntarily said that he had a mission to save souls and had supernatural power, but he had been prevented from trying to save Wesleyans' souls and had tried to save souls of those condemned at Borstal. He pooh-poohed the suggestion that boys at Borstal were not condemned to death. He expectorated and explained that this was to rid his system of acid injected into it. Cross-examined, Dr. Pasmore said that in 1913 he reported that the patient suffered from "mental exaltation," and his offering to preach at a Wesleyan Church tended to confirm this, as he was not a Wesleyan. In 1914 he appeared to be threatening violence against those responsible for his detention. The witness denied that to develop homicidal tendencies after two years necessarily pointed to chronic permanent lunacy. The symptoms he referred to had nearly passed away in 1917 when he advised that the plaintiff should stay as a private patient in a doctor's house. The witness thought it true that the plaintiff had offered the Commissioners £30 to send a mental detective to his home, to see that he had fair play, but he had not been able to get from him a statement as to the nature of the foul play he suspected.

Dr. H. M. Berncastle, assistant to Dr. Pasmore, described a conversation with Mr. Harnett at the Croydon Mental Hospital, and said that he claimed a mission to save souls, and the possession of supernatural powers. The plaintiff had resented the witness questioning him. He did not seem to realise that when released from Malling Place in December, 1912, he had been let out on trial, but perhaps explanations now given might have put this in a rather different light. He understood him to threaten violence, not legal proceedings. He had heard him give evidence, and should not even now certify him as of sound mind without making a special personal examination.

Lord Sandhurst described interviews with the plaintiff in July, 1913, May, 1917, March, 1920, and June or July, 1921. At the first, lasting three-quarters of an hour, he had formed the opinion that he was in a state of mental exaltation. Mr. Harnett had attributed his illness to the administration to him of a toxin. He had described graphically his religious attitude. He had not thought it desirable that the plaintiff should manage his own affairs, having made this visit for the information of the Master in Lunacy as to the appointment of a receiver. With regard to a later visit, the witness said that he was not there to inquire into the state of the plaintiff's mind with a view to his release. In 1917 he appeared more composed than in 1913, better still in 1920, and there seemed nothing wrong with him in 1921. Hostility to his wife, apparent in 1920, had disappeared in 1921.

Sir James Crichton-Browne gave evidence as to an interview with the plaintiff at Croydon in his capacity of Visitor in Lunacy in 1913. This was at the plaintiff's request after the visit of Lord Sandhurst in July of that year. Dr. Pasmore was out and the witness had formed an entirely independent opinion, without seeing the original certificates. He was with the plaintiff for three-quarters of an hour and satisfied himself without any doubt that he was of unsound mind and dangerous. He had not seen him before or since. The plaintiff was intelligent and had a good memory at the beginning of the interview, and said that he had been infected with nasal catarrh by his first wife after she had been dead three or four years, and that he had been injected with tuberculin by a tailor. He had received a mission from God to preach to sinners. He had a special mission to preach to boys and girls upon matters relating to sex. Asked whether he meant this as to girls, he said "Yes," and that God had prepared him. He was talkative and voluble and became excited.

The witness was proceeding to give statements of the plaintiff concerning his wife, but counsel on both sides wished to exclude this topic, and Sir James Crichton-Browne, having stated that Mr. Harnett had spoken of a "horrible discovery" a month after marriage, said that he formed the opinion that the whole thing was a delusion. The plaintiff had become very excited about it, beating his head with his hands and sobbing. Without the statement in question he should have considered him insane. Mr. Harnett had declared his belief in a plot of which Dr. Adam was the central figure to shut him up and prevent him carrying out his mission. The injection with "tuberculin" by a quack was, in the opinion of the witness, probably an injection with coloured water. Tuberculin would not produce delirium, and he had regarded the supposed result of the injection as a delusion of the patient.

The plaintiff, recalled, said that his offer to preach at Borstal was inspired by the words, "I was in prison and ye came unto Me." He had believed that Dr. Penfold did not believe in God and had therefore asked Dr. Webster whether he did, wishing to be attended by him. He spoke of interviews with Dr. Cooper and of Dr. Cooper having told him that he was perfectly sane. He denied asking him to spell parallelogram. He gave an account of his interview with Dr. Cooper on Dec. 13th, 1912, and said he had told him the same story of his wife that he had told Sir J. Crichton-Browne. He denied kneeling on the floor, but when Dr. Cooper had walked to the fire-place he had knelt on what looked like a *prie-dieu*. He had not claimed supernatural power or that he was overshadowed by God; and Dr. Cooper's description of what occurred was "absolutely false."

The Attorney-General, for Dr. Bond, said that no doubt matters described as the plaintiff's delusions had been in some cases not delusions at all. It was practically impossible always to avoid this occurring. He did not contend that Mr. Harnett was insane at the end of his confinement, but asked the jury to consider whether the plaintiff was out of his mind on Dec. 14th, 1912. Did Dr. Bond honestly think him so? Was he reasonable in forming that opinion? Mr. Harnett was sent back to Malling Place in order that Dr. Adam might judge whether he was better or worse. If he was sane it was not Dr. Bond who was responsible for keeping him under restraint. The only trespass Dr. Bond might have committed was in detaining him at the Commissioners' offices.

Mr. Neilson, for Dr. Adam, submitted that after the reception order and in all the circumstances, Dr. Adam had acted honestly, reasonably, and properly, and done nothing that a properly minded man should not have done in the circumstances.

Mr. Justice Lush, summing up, said that the main point to consider was the plaintiff's mental condition when he went to the offices of the Commissioners in

Lunacy. He was then entitled to have his legal rights observed and the defendants must take the consequences if they had interfered with them without just cause. Dr. Bond had no more control over the plaintiff's personal rights then he (the judge) had. Dr. Adam, if he had disregarded the plaintiff's rights contrary to the law, must take the consequences. What could be more tragic than that if the plaintiff was sane (and he was admittedly a good business man) he should be taken off by keepers and confined with maniacs for nine long years in asylums? He referred to Lord Sandhurst's evidence in spite of which a doctor, a Commissioner in Lunacy, had reported the plaintiff as insane in 1921. His Lordship quoted from a version of the Mikado as to the spelling of parallelogram and said that he saw nothing remarkable in the plaintiff asking people to spell it. If the jury believed that what had been described as delusions were not delusions, and that the doctors had made a terrible mistake, and had kept the plaintiff in asylums when he was sane and able to express himself, it greatly helped the plaintiff's case. His condition during those years was a vital point, as it threw light on his condition in Dec. 14th, 1912. If he then had no delusions what was there to justify his detention?

His Lordship left to the jury the questions given above, and after their answers and their verdict as to damages had been returned heard argument mainly as to the apportionment of the damages.

Mr. Neilson also submitted that Dr. Adam was legally protected by Section 330 of the Lunacy Act, 1890, if he had acted with good faith and reasonable care. He referred to Shackleton *v.* Swift, 2 K.B., at page 316. His Lordship said that Dr. Adam should have seen the plaintiff before taking him back. Mr. Neilson referred further to Section 55 of the Act, which, he argued gave the visiting justices power to grant the order which they did in this case. A proviso enabled the manager to take the patient back. Mr. Neilson also referred to the answers to questions 9, 10, 11, arguing that answer 11 was inconsistent with answers 9 and 10. If Dr. Adam honestly believed that the plaintiff was unfit to be at large, he could not be held to have failed to exercise reasonable care in having him brought back to Malling Place. When he was brought back he was examined and retained there and the jury had not found that Dr. Adam had not been actuated by an honest belief. He asked for judgment on his behalf.

His Lordship in his judgment dealt at length with the various dates as to which the damages might be apportioned, and proceeded to the question of remoteness of damage, the point being whether the defendants by their acts and through the findings of the jury were liable to pay damages in respect of the whole period of the plaintiff's detention as insane—that is to say, from Dec. 14th, 1912, to Oct. 15th, 1921, when he escaped. It was contended that the damages were too remote if assessed for the whole period of detention, and that the chain of causation was broken by a *novus actus interveniens* when Dr. Adam found the plaintiff to be insane on his return to Malling Place, or when in February, 1913, he was removed to Croydon, or when in November, 1913, he was re-certified. In his Lordship's opinion there was no *novus actus interveniens*, and it was therefore quite open to the jury to treat the long detention as a direct consequence of the defendant's acts. He expressed the view that each fresh medical superintendent receiving a patient under his care would know his history as shown by previous reports, and would take these into account so that decisions by different doctors, commissioners, visitors, and medical superintendents were not fresh interventions breaking the chain of causation. The jury evidently thought the plaintiff was sane throughout the whole time. The alleged delusions were disposed of and the Attorney-General did not dispute that most of them were not delusions. As to Dr. Adam, he could and should have seen the plaintiff first instead of allowing him to be detained and fetched back. He was guilty of gross want of care in acting as he did. He had submitted the plaintiff to the shock of being brought back before he examined him. As to Dr. Bond, the jury had found that the plaintiff was not of unsound mind on Dec. 14th, 1912, and that Dr. Bond did not honestly believe that he was (Q. 5). They had found that Dr. Bond had formed a mistaken view (Q. 6). If Dr. Adam had ascertained the truth he might not have had to see the plaintiff at all or if he had gone he might have cleared the matter up. There was, in his Lordship's opinion, ample evidence to support the jury's findings. Under Section 330 of the Lunacy Act, 1890, he held that the onus of proof that an official exercised reasonable care was on the official. His Lordship gave judgment for £5000 against Dr. Bond personally, and for £20,000 jointly against him and Dr. Adam, with costs to follow the event. On the question of a stay of execution being raised, he ordered £5000 to be paid by Dr. Bond within a week to the plaintiff, and £20,000 to be paid into court or security given within three weeks, with an undertaking as to costs.

The case lasted altogether 18 days, commencing Feb. 6th and ending Feb. 29th.

Public Health Services.

THE LOCK-UP SURGERY IN INSURANCE PRACTICE.

IT is laid down in the terms of service (Clause 12) under the National Insurance Acts that the panel practitioner may not carry out his insurance practice elsewhere than at his place of residence, except under such conditions as appear to the Insurance Committee, or, on appeal, to the Ministry, to be compatible with efficient service. Under these terms a lock-up surgery may be conducted if the doctor has made suitable arrangements whereby he may be available to his panel patients at any time his attendance may be required. At a recent meeting of the London Insurance Committee the question of what constituted suitable arrangements was brought up in a report of the Medical Benefit Subcommittee, of which a section consisting of three representatives of the Insurance Committee, and an equal number from the Panel Committee, had been appointed to deal with this matter. The section considered all cases of insurance practitioners who do not reside at their respective surgeries, with a view to satisfying themselves as to the arrangements made. While under the terms of service the practitioner is required to notify his patients at his own expense of any special arrangements which he may make in carrying out his insurance duties, the regulations under the Act do not specify any details with regard to such arrangements, and the Insurance Committee have agreed with the Ministry that in urban areas arrangements such as the following might be reasonably considered adequate in the conduct of a lock-up surgery:—

1. That there be a resident caretaker in the surgery and that telephonic communication should be established between the surgery and the doctor's residence.
2. Where the doctor lives within the distance limited in accordance with the decision of the Insurance Committee of the area, the doctor's address should be posted up at the surgery where it shall be visible both by day and by night.
3. Where the doctor lives at a distance and only his deputy is available between certain hours, a written notice of the deputising arrangement should be given to each of the doctor's patients.

Every case is to be considered on its merits by the Insurance Committee after consultation with the Panel Committee, and the Insurance Committee may require that the patients are to be notified at the practitioner's expense of any special arrangements under which the practice is carried on.

A PROMPT SCHOOL MEDICAL REPORT.

THE first annual report of the school medical service to reach us for the year ending Dec. 31st, 1923, comes from Taunton. The chief feature of the year's work was the opening of a new clinic where minor ailments, defective vision, discharging ears, skin disease, and dental defects are treated. The clinic is to be a health centre where advice as well as treatment can be obtained. Parents are invited to bring any child they are anxious about to the centre for examination, between 9 and 10 A.M. No card is required for admission, and attendance is counted as school attendance. School inspection treatment, feeding, infant welfare work, in fact all public health activities are administered through one officer, Dr. John Allen. The school nurse is also school attendance officer—a successful combination in Taunton. The child is looked after by the health department from the cradle until he finds employment after school, except during the critical period between 3 and 5 years of age. And no doubt Dr. Allen will shortly find some means of bridging this ugly gap. The routine inspection of 1250 children revealed 229 requiring treatment, and in 88·6 per cent. of these cases it was obtained. The dental examination of 1804 children resulted in treatment for 1061 of the 1258 cases requiring it. Throughout the year, with the exception of the summer holidays, dinners were provided by the Education Committee. The average daily attendance was 52. A one-course meal, with, in addition, a daily allowance of 2 oz. of wholemeal bread, and twice a week uncooked fruit such as apples or oranges, was served. The cost was 1·7*d.* per child for food, and for administration 2·8*d.* All the administrative part of this work was dealt with by the medical department. Unfortunately, all the infant departments in Taunton were closed for two weeks in April on account of measles and whooping-cough. Altogether during the year there were 39 cases of measles and 62 of whooping-cough.

The Services.

ROYAL ARMY MEDICAL CORPS.

Col. J. Poe, late R.A.M.C., retires on ret. pay.

Capt. T. Young to be temp. Maj. whilst empld. as Dep. Asst. Dir. of Hygiene.

Capt. K. N. Purkis retires, receiving a gratuity.

TERRITORIAL ARMY.

Maj. (Prov.) A. S. Bruzaud, having attained the age limit, is retired and retains the rank of Capt.

Capt. J. B. Orr to be Bt. Maj.

Maj. D. V. Haig, having attained the age limit, is retired and retains the rank of Maj. with permission to wear the prescribed uniform.

Capts. F. S. Fletcher and J. L. Lawry, having attained the age limit, are retired and retain the rank of Capts.

Capt. (Prov.) J. G. B. Coleman, having attained the age limit, is retired and retains the rank of Lt.

Capt. C. D. Mathias to be Maj.

Capt. R. J. W. A. Cushing resigns his commn. and retains the rank of Capt.

Lt. J. S. Pegum resigns his commn. and retains the rank of Lt.

ROYAL AIR FORCE.

Capt. C. T. Hastings, Army Dental Corps, is granted a temp. commn. as a Flight Lt. on attachment for duty with the R.A.F.

DEATHS IN THE SERVICES.

Inspector-General Walter Reid, R.N. (retd.), who died at Okehampton on Feb. 27th in his eighty-fourth year, graduated M.D. at Edinburgh University in 1863, in which year he also obtained the L.R.C.S. Edin. He then joined the Royal Navy and saw service in the Ashanti War of 1874, when he was mentioned in despatches and received the medal. Among his contributions to medical literature was a case of Double Popliteal Aneurysm at Haslar, which appeared in THE LANCET in 1895. He retired with the rank of Inspector-General in 1898.

Correspondence.

"Audi alteram partem."

MEDICAL MEN, THE LAW, AND THE PUBLIC.

To the Editor of THE LANCET.

SIR,—Modifications in the relations between medical practitioners, the law, and the public, especially the section of it suffering from mental disorder, are evidently called for. On the one hand, there is a public, jealous that no one shall be deprived of his liberty on account of mental ill-health except for reasons which appeal even to the uninformed—i.e., that the patient should be the raving lunatic of popular imagination or the wild-eyed homicidal maniac lusting for blood—and but little realising that under a calm exterior there may lurk a state of mental disorder rendering the individual utterly incapable of looking after himself or of being anything but a source of misery, and possibly of danger, to those about him. On the other hand, there is our profession, regarding the individual as a patient to be cared for, treated, and kept from harming himself and others. We are loaded with the always disagreeable, frequently odious, and not infrequently dangerous responsibility of "certifying" the patient; with the uphill and wearing burden of endeavouring to ameliorate the mental state of our patients and of safely and comfortably housing them; and with the solution of the problem of returning patients to normal society only when we feel sure that they are fit for it, and if they are not quite well, of securing that they shall be, with advantages to themselves, properly and safely looked after.

We and the nurses who work with us are prevented by law from receiving such patients into homes and hospitals unless they are certified, and we may then only receive them if we are the officers of mental hospitals or of licensed houses or if we receive but one patient at a time. Certification is, in fact, forced by law upon us and upon our patients if they desire to be properly treated or if their relations on their behalf so desire. The law, in short, steps between us and our patients and often prevents the treatment we deem scientific and proper. The law does this because it wishes to safeguard liberty.

If, then, the public and its legal advisers are of opinion that the mentally disordered are in danger at the hands of unscrupulous doctors, let us ask to be allowed to hand over freely (and with delight) all the proceedings associated with certification, forcible detention and release, to the law and its police officers. We should then relinquish a burden which it appears we are judged too weak to carry and too dishonest to be entrusted with. Such would be a simple and to many a satisfactory solution. Let science stand down and let inexperience and ignorance prevail. In the result we could at least point out that medical treatment was not in our hands in those particulars but in those of the law and its officers, while complaints as to this part of treatment would have to be directed to other quarters.

For the community the result would be, I suggest, unsatisfactory. If under the present system liberty is on the rarest possible occasions infringed (and personally I have never known of a case of wrongful detention) so is it in every case where an alleged offender, subsequently proved innocent, is remanded to gaol, or when innocent persons are condemned to terms of imprisonment; but under an alternative system in which certification, detention, and release become matters of judicial concern, many a person of unsound mind will go untreated and uncared for, intolerable conditions will be created for many a family, and many and violent assaults will occur. But the community does not realise this or from what we save it. So be it; but surely our measure is overflowing. We have borne the burden sufficiently long. Let it pass to other shoulders, to those who are of opinion that they know better than we do.—I am, Sir, yours faithfully,

Harley-street, W., March 1st. E. D. MACNAMARA.

A STANDARD DIET FOR INSULIN TREATMENT.

To the Editor of THE LANCET.

SIR,—After a few months' use of insulin on orthodox lines it became apparent that if diabetics throughout the country were to obtain the full benefit of the new treatment it was necessary to work out a much more simple method of arranging the diet and general control of the treatment.

The scheme outlined below has been so successful that even in hospital practice I generally use it instead of the older and more elaborate methods of estimating basal diet, sugar tolerance, &c., and gradually building up a diet. The time required to ascertain the right diet and the necessary dose of insulin is much shorter, while the end-results are equally good.

The general principle of the method is to give from the outset a diet capable of producing the number of calories required by the average patient to carry on his ordinary life. Elsewhere I have shown that there are many fallacies in the usual method of working out the basal diet and that there is no constant relationship between this basal diet and the adequate diet, but that the number of calories required by the average patient for an adequate diet is fairly constant. This diet is given, and if the patient cannot metabolise it without help he is given sufficient insulin to enable him to do so.

From the treatment of about 80 cases of diabetes it appeared that the average number of calories required daily was about 2300, and this was the number fixed on. The next question was how this number of calories should be made up. The amount of protein was fixed first. This must not be too low or body repair and growth cannot be maintained; it should not be too high or an unnecessary strain is thrown on the kidneys and the amount of potential carbohydrate may be excessive. Of the two faults it is obviously safer to give too much than too little. Disregarding the theoretical number of grammes per kilo of body-weight, about which the various authorities differ widely, I took Hutchison's broad estimate of the minimum requirements of the average man—viz., 80 g. of protein daily. This amount of protein will produce 320 calories. The remaining calories are made up from carbohydrate and fat and a satisfactory proportion of each is fixed. There has been much written about ketogenic and anti-ketogenic diets, but as a matter of fact some patients tolerate a much larger proportion of fat than others. Woodyatt's rule, however, is a useful one and in most cases errs on the safe side. The rule is that the fat should not exceed twice the carbohydrate plus half the protein. Taking the protein at 80 g., the carbohydrate would be 70 g., and the fat 185 g. if we take the nearest round figures necessary to maintain the right carbohydrate fat ratio and to produce in all about 2300 calories. These were the quantities taken in fixing the adequate diet which, for convenience, I called the "standard diet."

While it is easy for those of us who are constantly at it to work out different diets containing these proportions of carbohydrate, protein, and fat, the busy practitioner will find it an advantage to have one worked out for him, and the following example shows how it may be done with ordinary food-stuffs which suit the average taste. Of course, by studying the constituents of all the different articles of food the diet may be varied indefinitely so long as approximately the right amount of each constituent is retained. Anyone who has not the time or inclination to do so may confidently order the diet given below. A mild case, or one of average severity, where there is little acidosis or de-nutrition, need not stay in bed at all, and if his work is not very arduous, may carry on his usual life. Accurate diagnosis is *essential*. If clinical signs and symptoms are not conclusive of true diabetes a blood-sugar estimation must be done before commencing treatment.

"*Standard Diet.*"

Food.	Carbohydrate.	Protein.	Fat.
Three eggs	—	18	18
12 oz. 5 per cent. (green) vegetables	12	3	—
3 oz. butter	—	—	72
2½ oz. beef or mutton (lean) ..	—	20	12
2 oz. ham	—	12	16
2 oz. bacon	—	6	30
4 oz. milk	6	4	4
1 oz. cream (thin)	1	1	6
½ oz. olive oil	—	—	15
2 oz. brown bread	26	3	1
4 oz. porridge	18	4	2
1 oz. potato	6	1	—
1 oz. cheese (cheddar)	1	8	9
	70	80	185

In the case of meat, potato, &c., the weight given is that of the cooked article. If porridge is not liked an extra ounce of bread may be allowed, or half an ounce extra bread may be given if the potato be omitted. Again, instead of the ham, a patient may be allowed two ounces of fish and half an ounce extra butter, and so on. Weak tea, weak coffee, or beef-tea may be taken freely. The distribution of the meals may be left to the patient, but when insulin is given the meal following the dose should contain a fair proportion of the carbohydrate allowance. In most cases it is better to get the patient on to this diet gradually, and the directions I usually give are as follows:—

1st day	Diet as above but take	4 oz. bread,	1 oz. butter.
2nd day		3½ "	1½ "
3rd day		3 "	2 "
4th day		2½ "	2½ "

5th day, standard diet with 2 oz. bread and 3 oz. butter.

During this stage it is *essential* to test the urine each day for acetone or diacetic acid, and desirable to test it for sugar at the same time. The simplest plan is to instruct the patient how to test his own urine for sugar with Fehling's or Benedict's solution, and for diacetic acid by adding a little weak ferri perchloride solution to an inch of urine in a test-tube. He is instructed to report at once if any red colour is given with the latter test. If diacetic acid appears at all, or if acetone is present in any quantity, the amount of bread must be increased and the amount of butter diminished until the acidosis disappears. Another attempt may then be made by adjusting the amounts more gradually, or insulin started without further delay. If, however, no diacetic acid appears when the standard diet is reached the sugar may or may not have disappeared. If it has apparently gone specimens of urine at different times of day, especially an hour to an hour and a half after the meal containing the most carbohydrate, should be examined to make sure that the patient is really sugar-free. If so, go on with the diet, getting the patient to test the urine every day at first and afterwards once or twice a week. If weight, energy, and sense of well-being are normal continue indefinitely; if not, increase the diet first by adding more butter, cream or oil, keeping a sharp look out for acidosis. After the maximum amount of fat which can be tolerated is reached any further increase must take the form of bread or other carbohydrate. If sugar now reappears treat the case as described below where sugar has persisted from the first.

If there is still sugar in the urine after a week on the standard diet, or sooner if the amount of sugar is high, begin insulin treatment. Keep the diet the same, but give gradually increasing doses of insulin until the glycosuria is controlled. How is this done? Two specimens of urine are examined daily, one taken an hour to an hour and a half after supper, and the other before breakfast. Increase the insulin until there is just the faintest trace of sugar in one or other of these specimens. Whether the dose is pushed beyond this point depends, in the absence of blood-sugar estimation, on the intelligence of the patient and the amount of control available. If there is little opportunity for supervision, or the patient is not very intelligent, it is wiser to be content with this dose. On the other hand, an intelligent patient can usually increase the

dose of insulin unit by unit so as to keep the urine entirely sugar-free and make certain that his blood-sugar is about the normal level. A feeling of slight malaise warns him when he is having rather much, and he continues with a dose slightly less than this amount. During this time the diet is, of course, constant.

When should the insulin be given and how should the dose be increased? Start with 5 units before breakfast and increase to 10, 15, or 20 units at the same time. If more than 20 units are needed give two doses a day, one before breakfast and the other before tea, giving the larger dose before breakfast. Do not increase by more than 5 units at a time. At first the increase may be made every day, but when the sugar is getting small in amount the intervals should be longer and the increase should be by 1 or 2 units instead of 5. Never give insulin near bedtime. If this routine is carefully followed the danger of serious hypoglycæmia is negligible, although it is well for the patient to have a little glucose always available. The patient is taught to give himself the insulin as well as to test his own urine. He keeps a note of the dosage and the urinary findings and reports to the doctor from time to time.

As long as the patient feels well and his urine is normal he goes on with the standard diet and the requisite amount of insulin. If the diet is inadequate it is increased on the lines previously described—viz., first by increasing the fat so far as this can be done without the appearance of acidosis, and secondly by increasing the carbohydrate. If the latter is necessary there will be a recurrence of glycosuria which must be met by a further increase of insulin. On the other hand, if the diet proves to be slightly in excess of requirements, a rare occurrence, both the diet and the dose of insulin are reduced. In the great majority of cases, however, the standard diet is about right, and, with or without the help of insulin, the patient will maintain a normal weight and have sufficient energy to carry on his usual life in health and comfort. More severe cases where there is marked acidosis, denutrition, threatened coma or gangrene, should be kept strictly in bed. They should have a diet comparatively rich in carbohydrate and poor in fat, while insulin is administered from the outset. Once the acidosis is overcome the diet is adjusted until the standard diet is reached, and the amount of insulin necessary to metabolise this diet is ascertained as before.

By following this simple scheme of treatment most sufferers from diabetes can get adequate treatment at the hands of their own doctors, and complications of the disease, such as coma and gangrene, will in great measure be abolished.

I am, Sir, yours faithfully,

Swansea, Feb. 25th, 1924. A. CLARKE BEGG.

HUMANITY OF METHODS OF SLAUGHTER.

To the Editor of THE LANCET.

SIR,—Apropos of Dr. Leonard Hill's article in your issue of Dec. 22nd, 1923, and the letter from Dr. Duncan Forbes advocating the abolition of the pole-axe for the slaughter of oxen, it may be of interest to record the experience of Mr. C. E. Hagley, superintendent of the Bloemfontein municipal abattoir. There the humane-killer has been employed during the past 11 years for the slaughtering of 51,723 bovines and 11,813 pigs. Throughout this period there has been no accident, the nearest approach to one being with the first gun issued, which had the striker unprotected. A restless ox struck the striker with its horns, but the bullet penetrated the skull and dropped the animal. The humane-killer is handled only by the superintendent and his assistants; native slaughter-men are not allowed to use it. During the period it has been in use there have been no complaints concerning insufficient bleeding or the keeping quality of the meat of animals killed by this method.

I am, Sir, yours faithfully,

W. A. BERRY,

Feb. 14th, 1924. Medical Officer of Health, Bloemfontein.

IN THE MATTER OF "DICHOTOMY."

To the Editor of THE LANCET.

SIR,—In compliance with a widely felt desire, a meeting of the consultants and specialists of this city was held at the Birmingham Medical Institute on Monday, Feb. 25th, for the consideration of the subject of "dichotomy" or fee-sharing. The meeting was very largely attended and letters were received from a few who were absent. After full discussion, including reference to the numerous cases in which patients ask what will be the total cost of treatment in a nursing-home or private hospital, the following resolutions were passed unanimously:—

1. It is improper for a Consultant to transfer any portion of his consultation- or operation-fee to the Practitioner who has called him in. The Consultant who offers or agrees to such payment, however innocently, is open to the suspicion of paying a "commission" for his own advantage. The Practitioner who accepts or asks for it cannot maintain the position of a trusted and unbiased adviser as to the need for a consultation and the selection of a Consultant.

2. No Consultant or Specialist shall pay to the General Practitioner who is associated with him in a case any part of an operation-, consultation-, or so-called "inclusive" fee, unless he informs the patient or his representatives of the services for which the payment is made and the amount of such payment.

It was further resolved that a report of the meeting should be sent to every consultant and specialist in the Birmingham district for his or her signature as evidence of agreement, and to all members of the medical profession in the district for their information.

PRIESTLEY SMITH,
Chairman of the Meeting.
LEONARD G. PARSONS, } Secretaries.
A. W. NUTHALL, }

Birmingham, Feb. 28th, 1924.

LEPROSY: A SELF-HEALING DISEASE.

To the Editor of THE LANCET.

SIR,—In the report of the meeting at the Mansion House in support of the British Empire Relief Association in your issue of Feb. 9th, Sir Leonard Rogers is stated to have "briefly outlined the researches which enabled him to establish the important principle that by the injection of soluble products of the active portions of the old Indian remedy for leprosy, chaulmoogra oil, the bacillus of the disease could be destroyed within the body, with clearing up of all symptoms, as well as of the infectivity of the disease, and that similar preparations derived from cod-liver and other oils were also effective in leprosy." And in a leading article summarising the views of Dr. Ernest Muir it is stated that during the first two stages of the disease "the chief object of treatment is to restore the lowered tissue resistance."

In papers which you have been good enough to publish in THE LANCET at various times in the last ten years I have endeavoured especially to show that an increase of lipase in the blood and tissues is an important factor in natural and therapeutic immunisation and induced resistance. I hope this aspect may not be lost sight of in the present campaign. With regard to leprosy, in the *Journal of Tropical Medicine and Hygiene*, 1921, xxiv., 161 (referring to the treatment by sodium chaulmoograte and sodium morrhuate in leprosy and tuberculosis introduced by Sir Leonard Rogers), I pointed out that these salts increased the action of lipase in vitro in the same way as sodium oleate; that in view of the ascertained action of sodium oleate in vivo, "it would seem reasonable to infer a direct stimulating action primarily of tissue lipolysis in explanation of the therapeutic effect of sodium morrhuate, and at any rate, part explanation of the effect of sodium gynocardate (chaulmoograte)." I went on to say, "the idea or principle underlying treatment is the production of the lipolytic ferment in the tissues which in tuberculosis acts on

the fats and lipoids of the tubercle bacillus and is injurious to it; and presumable also in leprosy on the lepra bacillus." The main outcome of my research work has been to show that natural and increased production of lipase or fat-splitting ferment in the blood and tissues is an important factor in the protective processes or induced resistance of the body. I am, Sir, yours faithfully.

J. A. SHAW-MACKENZIE, M.D. Lond.

King's College, London, Feb. 29th, 1924.

TREATMENT OF UTERINE FIBROIDS.

To the Editor of THE LANCET.

SIR,—The discussion held on Feb. 25th at the Medical Society, and reported last week in your columns, gives radiologists an opportunity of revising their views. Briefly the position is as follows. Gynæcologists either (1) rely largely on X rays in selected cases; (2) fear X rays as uncertain in their cure; or (3) dread possible injury to healthy tissues.

My own view is: (1) That the diagnosis of fibroid uterus should be made by a skilled gynæcologist, if necessary under a general anæsthetic. (2) Cases should be carefully selected; women nearing the menopause with small fibroids, causing hæmorrhage, are specially suitable. (3) Ovarian cysts and tumours or suppurative diseases of the ovaries, tubes, or uterus are unsuitable for X ray treatment. In selected cases the results are all that can be desired. As to technique, those who have adopted the Erlangen method of deep X ray therapy are inclined to apply it to fibroids. An inoperable cancer may justify a desperate remedy, which may inflict considerable damage on healthy structures, but it is unnecessary to subject patients with fibroids to the discomfort and malaise which almost invariably follows the Erlangen treatment.

Radiologists are *not* justified in damaging healthy tissue while curing fibroids, nor need they. With Coolidge tubes and modern apparatus, dosage and penetration can be measured with great accuracy, and the soft rays which injure the skin can be filtered out. The exact dose can be repeated at will, and no damage need accrue from X ray treatment.

I am, Sir, yours faithfully,

Upper Wimpole-street, March 3rd. ALFRED C. JORDAN.

AUTO-HÆMO-THERAPY.

To the Editor of THE LANCET.

SIR,—Dr. S. G. Billington's interesting article in your last issue on Auto-hæmo-therapy, describing the results obtained by the use, in certain infections, of a "hæmo-vaccine" composed of coccoid bodies derived from the blood, brings up a question which I believe will prove to be of considerable importance. In a paper intended for publication I have noted the formation of small spheres and granules produced by the exposure of washed red cells to the rays of the tropical sun, even for only a few minutes. These granules, which I take it are of the same nature as the coccoid bodies described by Dr. Billington, are evidently the products of the disintegration of red cells. I have endeavoured to show that such disintegration products, whether produced by the action of the sun, by heat to 56° C., by grinding in a mortar, or by bacterial action are toxic, and that some of the phenomena of bacterial infection may be attributed to this toxin rather than directly to a bacterial toxin. Further, that the injection of destroyed red cells has a therapeutic value, presumably by setting up an immunity to the toxin which is the cause, wholly or in part, of the symptoms of the disease. Though we have approached the subject from different angles and employ an entirely different technique, I believe that Dr. Billington and myself are dealing with the same phenomenon—namely, the toxic nature of red cells just sufficiently destroyed to allow of their stroma being diffused into the circulation.

I am, Sir, yours faithfully,

Leicester, March 2nd, 1924. T. C. CLARE.

Obituary.

ROBERT GUTHRIE POOLE LANSDOWN, M.D., B.S. DURH.

THE sudden death of Mr. R. G. P. Lansdown, consulting surgeon to the Bristol General Hospital, occurred on Feb. 17th in a syncopal attack, at the age of 60. The news of his death was received with consternation by all who knew him, for he had been in full work up to the morning of his death.

Mr. Lansdown was born in September, 1863, in Bristol. His father, Francis Poole Lansdown, was surgeon to the Bristol General Hospital from 1861 to 1893, and his grandfather, Joseph Goodale Lansdown, held the same post from 1832 to 1861, being a member of the original staff of the hospital. Robert Lansdown was educated at Clifton College and Epsom College, passed his preliminary science examination from University College, Bristol, and went on to complete his professional training at Guy's. In 1889 he passed his M.B., B.S. examination at Durham, gained his Conjoint diploma in 1890, and took his M.D. Durh. in 1891. After serving as clinical assistant, assistant house surgeon, house surgeon, and resident obstetric officer at Guy's, he joined his father in practice at Clifton in 1891. Almost at once he became associated with the Bristol General Hospital, an association which continued till his death and was the dominant factor in his professional life. His first appointment to the hospital was that of anæsthetist, which he held till 1893, when he was appointed assistant surgeon, becoming a full surgeon three years later. In 1918 he became dean of the honorary staff, retiring from active service in September, 1923, under the age rule of the hospital. On his retirement he was elected a consulting surgeon to the hospital, and proceeded to prove that his office was more than a mere title by attending regularly at the weekly surgical consultations with his colleagues. To these years of hospital work he gave the most devoted service. He was a true friend to everyone connected with the place and gave himself to upholding and raising the standard of its work in all phases of its activity. In 1902 he dropped his general practice and limited himself to consulting surgery; but his experience of general practice stood him in good stead, and was reflected in his relations with the practitioners of the district as well as in the very practical character of his surgical teaching. In addition to his work as dean of the hospital staff, he did good service as lecturer on practical surgery for a number of years at the University College (later the University) of Bristol, and held many other offices in the University. His interest was always in clinical work, and he lost no opportunity of imparting the fruits of a wide experience to his students as well as his colleagues. He was extremely methodical and neat in his ways and this was particularly to be observed in his surgical technique. No matter how great the demands on his time he was always able to give his attentive consideration to any question put before him. During much of his surgical career he gave a great deal of thought to the provision of private hospital accommodation. At the time of his death he was chairman of the committee of the Chesterfield Place Nursing Home, and was largely responsible for recent developments destined to enlarge it and convert it into a first-class private hospital. Soon after settling in Bristol he became Surgeon-Captain to the Gloucestershire Royal Artillery Volunteers, and retained this appointment for many years. On the outbreak of war in 1914 he was mobilised with the Second Southern General Hospital as a Major in the Territorial Force, and until its demobilisation in 1919 continued to serve as surgeon to the Royal Infirmary section of that unit. He occupied the presidential chair of the Bath and Bristol branch of the British Medical Association, and also of the Bristol Medico-Chirurgical Society. For 24 years he was honorary surgeon to the Clergy Daughters'

School. As a governor of the Queen Victoria Jubilee Convalescent Home he concerned himself much with the provision of time and place for recovery after operations and serious illness. He was the author of many papers on surgical subjects which appeared in various professional journals.

Lansdown was a diligent worker, but he was also a very good holiday-maker. Wherever he went he found occasions for his two great hobbies, motoring and photography. Less than 48 hours before his death he gave a delightful address to the Bristol Medical Club on "Rambles," illustrated by a number of beautiful lantern-slides taken on his holidays. There were many other activities that went to make a very full life. One trait in particular, his aptitude for acting, gave him much pleasure and made him a mainstay of the Bristol Medical Dramatic Society. In his time he was a good swimmer and received the bronze medal of the Royal Humane Society for saving a child from drowning in a rough sea at the imminent risk to his own life in the summer of 1883 near Torquay.

A colleague writes of him: "Lansdown was a most loyal friend and was always willing to listen to the troubles of other people and give help and advice. He was not easily dismayed by adverse circumstances and was often responsible for rallying a forlorn hope and leading it to victory. His cool and steady judgment was a great asset to the institutions with which he was connected, and his death is a grievous blow to the work of his profession in Bristol."

A sense of this loss received striking expression in the very large attendance of doctors at his funeral service on Feb. 20th at St. Paul's, Clifton, where he was a sidesman and had attended service only a few hours before his death. Mr. Lansdown married, in 1893, Miss Alice Anna Griffiths, of Cardigan, who survives him, with a son, who is a medical man, and a daughter.

JOHNSON SYMINGTON, M.D. EDIN., F.R.C.S. ENG. AND EDIN.

Dr. Johnson Symington, emeritus professor of anatomy at Queen's University, Belfast, died on Feb. 24th in Edinburgh, aged 72. Prof. Symington was born in 1851 and was educated at Taunton and at Edinburgh University, where he graduated in medicine in 1877. Later he was appointed lecturer in anatomy at the Minto-street extra-mural school in Edinburgh, and his success as a teacher there gained for him, after some years, the chair of anatomy in Queen's College, now Queen's University, Belfast. Prof. Symington held many various administrative and educational offices. He was examiner in the Royal University of Ireland, of which he was an ex-Fellow, and in 1903 he was appointed President of the Section of Anthropology at the British Association Meeting in Southport. For three years, from 1904 to 1906, he was President of the Anatomical Society of Great Britain and Ireland. The honorary degree of LL.D. was conferred upon him by Queen's University, Belfast, and in 1903 he became a Fellow of the Royal Society.

We have received the following appreciation of Prof. Symington from his colleague, Prof. T. H. Milroy, M.D.:—

"Practically from the beginning of his undergraduate career until the close of an active professional life, Johnson Symington devoted himself to the subject of anatomy, and the keen zest, natural to the young worker, never showed any sign of abatement with the passage of the years. From the very outset he recognised that teaching and investigation must go hand in hand, and, although both at Minto House, Edinburgh, and in Belfast his fame as a teacher might in some respects have satisfied him, he never allowed his love of teaching to encroach upon his activities as an investigator. At all times the outlet for his energetic personality was research, and thus British anatomy owes him a deep debt of gratitude for valuable contributions in many departments of topographical anatomy. While lecturer in anatomy in Minto House, Edinburgh, he published a number of papers in the *Journal of Anatomy*, dealing with applied anatomy, the structure of the central nervous system, and splanchnology. During his period of tenure of the Belfast chair, he published his most important work. From 1903 onwards his interests were mainly centred upon cranio-cerebral topography. In 1903 he described a method devised in order to demonstrate the relations of the deeper parts of the brain to the surface, and from this period onwards until the publication of the work in 'Quain's Anatomy' and elsewhere, he carried out an elaborate series of investigations with a wealth of material which must have aroused the envy of many less favoured teachers. Under the joint editorship of Sir Edward Sharpey Schafer and Prof. Symington, Part 1 of Vol. III. of 'Quain's Anatomy' dealing with the anatomy of the central nervous system appeared in 1908, and in this volume the results of many years' fruitful labour were incorporated, the macroscopic sections being left entirely in Symington's hands. Part 2 of this volume, dealing with the peripheral nervous system and sense organs, was published under the same editorship in the following year. In 1914 the volume on splanchnology appeared under the editorship of Symington, assisted by Dr. P. T. Crymble, and for this volume, as in the case of the preceding ones, an immense amount of work was carried out in his department. The work of so many years' strenuous research received due recognition by his fellow anatomists.

Although so actively engaged in his own department, he did not allow this work to monopolise his attention, and so we find him as the years went on playing a more and more important part in general university administration. During 24 years of active service in Ireland he devoted himself wholeheartedly to the interests of the old Queen's College and later the Queen's University of Belfast. As registrar, senator, and university commissioner he served his college in a way which will never be forgotten. The University of Belfast has good cause for revering the memory of one who never spared himself in maintaining and advancing her interests. His old pupils in Belfast and Edinburgh will be pleased to learn how highly their old chief appreciated their generosity in raising funds to endow a prize bearing his name to be awarded for research by junior anatomists on anatomical subjects. He was delighted to learn that the Anatomical Society had made their first award of this prize about a year ago. May his fine example of devoted service inspire young anatomists to follow in his footsteps."

Prof. Symington was a widower, and to his daughter we offer sincere sympathy in her bereavement.

HENRY WALTER VERDON, F.R.C.S. ENG.

Dr. Verdon, who died on Feb. 25th at Streatham Hill in the seventy-fourth year of life, was a man of all-round culture and a barrister-at-law of the Middle Temple. He qualified M.R.C.S. from St. Thomas's Hospital in 1873, continuing his studies at Paris and Brussels, and taking the Fellowship in 1876. After holding resident appointments, both at St. Thomas's and Westminster Hospitals, he settled down in general practice in the south of London, diseases of the heart gradually becoming his chief interest, and finally his specialty. A series of books and pamphlets on angina pectoris came from his pen, the last of which, appearing in 1920, laid stress on the hyper-irritability of the central nervous system as the basis of the anginous habit. In this work he was able to draw upon a large storehouse of facts and observations coming under his own experience. Dr. Verdon was a fine example of the utilisation of a general practice for intensive study of a special problem.

WILLIAM ARTHUR BOND, M.D. CAMB., M.R.C.P. LOND.

WE regret to record the death of Dr. W. A. Bond, who only retired in 1921 from the chief health officership of Holborn. His death occurred at Torquay on Feb. 20th as the result of pneumonia following on influenza. Dr. Bond was educated at King Edward VI. School, Norwich, and St. John's College, Cambridge, where he was a scholar and graduated as fourteenth wrangler. He went on to St. Thomas's Hospital, holding there the position of house physician, and later house appointments at Queen Charlotte's and the South-Western Fever Hospitals. For a while he studied in Paris, after which he took the M.R.C.P. Lond. His earliest public health work was done as medical officer to the St. Olave and Holborn

District Boards of Works, when he gained experience of the hygienic problems of meat storage and transport, which then needed much attention. When Holborn amalgamated with St. Giles, Dr. Bond became full-time medical officer of health for the combined Metropolitan Borough of Holborn, an appointment which engrossed all the busiest years of an active life. Gradually his recommendations resulted in a thorough overhauling of meat inspection, and in a series of prosecutions which initiated reform. Outside his official life he was active in his profession, being hon. secretary to the Royal Institute of Public Health and one of the earliest supporters of the Society of Medical Officers of Health, which for several years actually met at his office. His work was careful and systematic, and his writings, both official and quasi-popular, were lucid and finished. Although he did nothing to bring himself prominently into the public eye, the public health service will remember Dr. Bond with honour and gratitude.

EFFINGHAM CARROLL MACDOWEL, M.D. DUB., F.R.C.P. IREL.

Dr. E. C. MacDowel, surgeon to the Sligo County Infirmary, died on Feb. 23rd, after a protracted illness, at the age of 73. Born in 1851, he was the eldest son of the late Dr. Benjamin MacDowel, professor of anatomy and chirurgery in Trinity College, Dublin. He was educated at Trinity College, where he graduated Bachelor of Arts, had a distinguished student career both in arts and in medicine, and later went to Oxford University as Radcliffe Medical Scholar. Having obtained his A.B. he took the M.D. Dub. in 1875. While still a young man he was elected surgeon to the Sligo County Infirmary and he continued to perform the duties of that post for some 46 years until a few months ago. He was also visiting physician to the Sligo and Leitrim District Lunatic Asylum. In 1883 he became a Fellow of the Royal College of Physicians of Ireland, a qualification which was exceptional among country practitioners in Ireland. In the year 1907–08 he was president of the Irish Medical Association, which in that year held its annual meeting in Sligo. Dr. MacDowel was one of the leading practitioners in the west of Ireland and for many years he enjoyed a large consulting practice. He was a man of much culture, a sound diagnostician, possessed of considerable operative skill, and he took much pains to keep abreast of the advances in medical and surgical knowledge. His health had suffered since he lost his eldest son in the war. His next surviving son, Dr. F. L. H. MacDowel, is a surgeon in the Navy.

THE LATE DR. T. DOBSON.—The death occurred recently of Thomas Dobson, M.D. St. And., of Windermere, in his eighty-third year. Born in 1840 he studied at Charing Cross Hospital, and in 1862 he qualified M.R.C.S. and obtained the M.D. St. Andrews. In the same year he went to Windermere as assistant in a practice which he took over a few years later. As a practitioner he enjoyed success and respect in the district, and to his professional qualities was added a charm of manner which endeared him to his patients. He retired in 1888, and since then had continued in many useful public activities.

WORTHING HOSPITAL.—An important extension of this hospital was determined on at the annual meeting of the governors held on Feb. 29th, the idea being to increase the number of beds from 46 to 100. It was not thought possible to proceed with the scheme as a whole at once, but the present men's and women's wards will be enlarged first, with the object of securing the recognition of the hospital as a training centre for nurses. In 1920 the excess of expenditure over income was £1035. In 1921 this figure dropped to £453, and in 1922 to £135, but in 1923, notwithstanding the fact that the total expenditure was £734 in excess of the expenditure in the previous year, there was a balance in hand of £662. This was due largely to the result of the household box scheme, the amount received from this source during the year amounting to £1538, and since its inauguration to the sum of £1820.

Medical News.

UNIVERSITY OF OXFORD. — *Rolleston Memorial Prize, 1924.*—This prize, which is now of the value of about £100, is awarded every two years, under the conditions stated below, for original research in any subject comprised in the following list: Animal and Vegetable Morphology; Physiology and Pathology; and Anthropology. No candidate will be eligible (1) who has not either passed the examinations for the B.A. degree or the B.M. degree at Oxford, or for the B.A. degree or the M.B. degree at Cambridge, or been admitted as a candidate for the degree of B.Sc. at Oxford or as an advanced student for the degree of B.A. at Cambridge; (2) who has exceeded a period of six years from attaining one or other of these qualifications, or from his attaining the first of such qualifications if he has attained more than one; (3) who has exceeded ten years from his matriculation. The next award will be made in Trinity Term, 1924. Candidates wishing to compete must forward their memoirs to the Registrar of the University of Oxford before March 31st, 1924. The memoirs may be printed, typewritten, or in manuscript; should be inscribed "Rolleston Memorial Essay"; and should bear the name and address of the author. Memoirs already published are admitted to the competition. No account will be taken of any research which has not been prosecuted by the candidate subsequent to his matriculation.

Christopher Welch Scholarship in Biology, 1924.—An examination for this scholarship will be held at the University Museum in July, 1924. Candidates must be undergraduate members of the University who have not exceeded the twelfth term from their matriculation. They may offer any one of the subjects Botany, Animal Physiology, Zoology; and they must give notice of the subject selected by them to the Registrar of the University not later than March 1st, 1924. They must further enter their names in person or by letter at the University Registry not later than Tuesday, April 1st, and must at the same time produce or send to the Registrar of the University evidence of their capacity for original observation and research. A candidate may also submit to the examiners any original work previously done by him.

UNIVERSITY OF LONDON. — A meeting of the Senate was held on Feb. 27th, the Vice-Chancellor, Mr. H. J. Waring, being in the chair. Mr. Richard Lake has been appointed as the first holder of the Geoffrey E. Duveen Lectureship in Otology, as from Jan. 1st, 1924. Mr. F. J. Steward was appointed to represent the University on the Council of the Fellowship of Medicine.—In connexion with a scheme which the Senate have under consideration, the Vice-Chancellor announced that the Chancellor (the Earl of Rosebery) had handed to the Principal Officer a cheque for £5000 in contribution towards the sum needed for the acquisition of an athletic ground for the use of the students of the University. A resolution was adopted conveying the warmest thanks of the Senate to the Chancellor for his gift.

THE annual conference of the British Hospitals Association is to be held in London on Thursday and Friday, June 19th and 20th.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—The second half of the intensive course at the Royal Northern Hospital will begin on Monday, March 10th, and continue throughout the week. Apart from the demonstrations and lectures by members of the Royal Northern staff, the course will include a demonstration on Wednesday morning, March 12th, at the North-Eastern Fever Hospital, and on Thursday afternoon, March 13th, at the Central London Ophthalmic Hospital. A special course in Gynæcology at the Chelsea Hospital for Women began on Monday last, and will continue till the end of the month. Entry may be made at any time for the remainder of the course, which consists of clinical demonstrations in the wards and out-patient department, followed by lectures or operations in the theatre. At the Royal Free Hospital on Wednesdays, at 5.30 P.M., Dr. C. B. Heald is giving a series of lecture-demonstrations on recent advances in medical electrical treatment. Beginning on March 8th, at 11 A.M., and on successive Tuesdays and Saturdays, Dr. Porter Phillips and Dr. Thomas Beaton are giving a series of clinical lectures on the Diagnosis and Symptomatology of Mental Diseases, the Psychoneuroses, and the Medico-legal Aspect of Insanity. At the Royal Waterloo Hospital for Children and Women there will be given a three weeks' course on diseases of children from March 17th to April 5th. The course will occupy each afternoon with lecture-demonstrations, ward work, and out-patient cliniques. Full particulars regarding any of the above courses, with copies of each syllabus, will be forwarded on application to the Secretary to the Fellowship of Medicine, 1, Wimpole-street, W. 1.

FOOD EDUCATION SOCIETY.—Dr. Harry Campbell and Sir Harry Baldwin have been respectively elected chairman and vice-chairman of this society.

ENCEPHALITIS LETHARGICA IN MANCHESTER.—In the week ending March 1st 13 cases were reported, and in the previous week 16 cases with 2 deaths. The first case in the present outbreak was notified on Jan. 2nd; on Feb. 2nd, 3 cases; on Feb. 9th, 9; on Feb. 16th, 13; and on Feb. 23rd, 16 cases were notified. This year the deaths have numbered 5 out of 42 cases.

ACADÉMIE DES SCIENCES ET LETTRES DE MONTPELLIER.—Two Alphonse Jaumes prizes will be awarded in 1925, one for an essay on a subject of general therapeutic interest, and one for an essay on a medico-legal theme. Each prize will be of the value of 2000 francs. Essays, written or printed, should be in French, and should be deposited before Dec. 31st at the Secretariat of the Académie. Further particulars can be obtained from Mr. F. Carrieu, 5bis, rue de la Merci, Montpellier.

FOOT-AND-MOUTH DISEASE COMMITTEE.—A committee has been appointed by the Ministry of Agriculture "to initiate, direct, and conduct investigations into foot-and-mouth disease, either in this country or elsewhere, with the view of discovering means whereby the invasion of the disease may be rendered less harmful to agriculture." The personnel of the Committee is as follows: Sir Charles Sherrington, P.R.S. (chairman), Dr. J. A. Arkwright, Prof. W. Bulloch, F.R.S., Prof. J. B. Buxton, Captain S. R. Douglas, F.R.S., Mr. S. H. Caiger, Sir John McFadyean, Prof. C. J. Martin, F.R.S., Prof. Robert Muir, F.R.S., Sir Stewart Stockman, Mr. H. G. Richardson, and Mr. W. G. Wragg (secretaries).

CHADWICK PUBLIC LECTURES.—A lecture, illustrated by lantern slides, on the Small-pox and Vaccination Question To-Day, will be given by Dr. C. Killick Millard in the Council Chamber, Old County Hall, Spring Gardens, Charing Cross, London, W.C., on March 10th, at 5.15 P.M. Sir Arthur Newsholme will preside.—A lecture, illustrated by diagrams, on the Sanitary Inspector in the Machinery of the Public Health Service will be given by Mr. John T. Quinton, in the same place, on March 28th, at 8 P.M., Sir William Collins presiding. Admission is free to both lectures.

INSURANCE FUNDS AND VOLUNTARY HOSPITALS.—At the annual meeting of the Manchester Children's Hospital the chairman, Lord Colwyn, called attention to the fact that one-half of the patients who came to these hospitals were insured under the Insurance Acts. Actuarial examination showed that the funds accumulated under these Acts show a surplus of £17,000,000, but the hospitals got nothing from the funds. It costs, he said, £5,000,000 a year to deal in the hospitals with these insured persons, and that sum voluntary subscribers from among the generous public have to pay, and he expressed the view that hospitals have a fair and justifiable claim on this fund. But for the special grants of £5000 from the proceeds of the Lord Mayor's Fund, and £1500 from the Voluntary Hospitals Commission, and for the fact that the subscriptions were £900 more than last year, there would have been a heavy deficit on the year's working.

LARGE SCALE PRODUCTION OF INSULIN BY THE "ACETONE-PICRATE PROCESS."—The Finance Committee of the Middlesex Hospital Medical School, at their meeting on Feb. 26th, report that so satisfactory has the new process recorded in THE LANCET (Feb. 16th, 1924, p. 330) by Dr. E. C. Dodds and Dr. F. Dickens turned out that large amounts of insulin can be prepared at a much reduced cost. Their process has been found to be eminently suited to the production of insulin on a large scale. It is to be understood that the insulin prepared in the Biochemical Department is only for experimental purposes and for the supply to cases of diabetes under treatment in the hospital, but, on going into the matter of costs, the Finance Committee find that the costs of preparation have been so reduced by the employment of the water process that they have been able greatly to reduce the price of insulin to the hospital. It was not easy to determine what the ultimate cost might be after further experience of the method, but it was decided to recommend an immediate reduction to something under 2*s.* per 100 clinical units. This price was arrived at after allowing for all overhead charges, cost of materials, salaries, and a margin of profit, which could be used for the purposes of continuing experiments with a view to the further improvement of technique and a still greater reduction in cost. This price is to be taken as the first instalment of the results to be expected from the new method, and it is confidently anticipated that a further substantial reduction in the price will be possible.

LISTER MEMORIAL FUND.—Sir Charles Sherrington, P.R.S., will unveil a monument to Lord Lister in Portland-place, London, W., on March 13th, at 11.30 A.M. Lord Hambleden will speak on behalf of the subscribers.

JOINT COUNCIL OF THE ORDER OF ST. JOHN AND BRITISH RED CROSS SOCIETY.—Dr. F. N. Kay Menzies has been appointed to succeed the late Sir Napier Burnett as Director of the Council's Department of Hospital and Medical Services, and will take up his duties on April 1st.

LEGION OF HONOUR.—The following appointments or promotions have just been made by the French Minister of Hygiene to the higher ranks of the Légion d'Honneur:—

Grand Officier.—M. Tuffier, chirurgien honoraire des hôpitaux.
Commandeur.—M. de Martel de Janville, chirurgien de Paris.
Officiers.—MM. Arrou, chirurgien honoraire des hôpitaux, à Paris; Coussol, chef de bureau au ministère de l'hygiène; Hugenschmidt, docteur en médecine, à Paris; Henri Lévy dit Lévy-Bieg, docteur en médecine; Ménard, docteur en médecine.

OXFORD OPHTHALMOLOGICAL CONGRESS.—This congress will assemble at Keble College on the evening of Wednesday, July 2nd, and the meeting will be held on July 3rd, 4th, and 5th. On the morning of July 3rd a discussion on the General Principles of the Treatment of Convergent Concomitant Strabismus, with exclusion of the description of details of operations, will be opened by Dr. E. Landolt, of Paris, and Dr. Ernest Thomson, of Glasgow. The official dinner of the congress will take place on the evening of July 3rd. The Doyne memorial lecture will be delivered on the morning of Friday, July 4th, by Dr. T. Harrison Butler, the subject being Microscopy of the Living Eye, with especial reference to the Gullstrand Slit-lamp. Members intending to take part in the discussion or to contribute either papers or demonstrations are asked to notify the hon. secretary at their early convenience.

ROYAL SANITARY INSTITUTE.—A sessional meeting will be held on Friday, March 14th, in the Town Hall, Brighton, when discussions will take place on (1) the Schick Test and Immunisation against Diphtheria, to be opened by Dr. Duncan Forbes; (2) Ionisation in the Treatment of Ear Discharge, to be opened by Dr. Rutherford Cramb; (3) the Drainage of Brighton, to be opened by Mr. Harry Tillstone. The chair will be taken at 7.30 P.M. by Dr. Louis C. Parkes. The following will take part in the discussions: Drs. J. Cates, C. M. Fegen, A. Greenwood, F. C. Linton, H. P. Newsholme. On March 15th visits will be paid to the school clinic, school buildings and abattoir, and the pavilion, and to a farm to see the production of certified milk.

ROYAL COLLEGE OF SURGEONS IN IRELAND: CHARTER DAY DINNER.—This dinner was held in the College Hall last Saturday evening, March 1st, the President, Sir W. I. de C. Wheeler, in the chair. H.E. the Governor-General was the principal guest, and there were also present Lord Shaw of Dunfermline, the Lord Chief Justice of Ireland, the Recorder of Dublin, the Master of the Rolls, the Provost of Trinity College, the Vice-President of the Royal College of Physicians of Ireland, and Mr. James Sherren, surgeon to the London Hospital. The President, in proposing the "Prosperity of Ireland," referred to the progress of the country in the last year or two from disorder to order, and from instability to security. He said that he had been asked if it would be possible to accommodate in Dublin some 500 American surgeons, who were coming to study Irish methods of surgery. The progress of science was an essential condition to the prosperity of the country. The Governor-General, in his reply, took the opportunity of defending the medical service of the National Army against certain wanton charges of neglect or cruelty that had been brought against them. Into some of the more explicit of these charges he had personally inquired, and he had found that they were baseless. Sir F. Conway Dwyer proposed the "Learned Professions," and referred to the notable public services, in their several capacities, of Lord Shaw, of the Provost of Trinity College, and of Mr. Sherren. Lord Shaw, in his reply, expressed his friendly feelings towards Ireland, and his admiration for the recently framed Irish Constitution. Mr. Sherren entertained the audience with reminiscences of his early acquaintance with Ireland, when he followed the profession of sailor. The Provost of Trinity College, the Lord Chief Justice, the Vice-President of the College of Surgeons, and the Vice-President of the College of Physicians also spoke. At the end of the proceedings, the Governor-General, in proposing the toast of the "President," presented him, on behalf of the members of the Council of the College, with a handsome piece of plate. Sir William Wheeler's term of office comes to an end in June next. Owing to the regretted illness of his predecessor he has had to perform the duties of President for close on four years.

MEDICAL SOCIETY OF LONDON.—The annual dinner will be held at the Grand Hotel, Trafalgar-square, London, W.C., on Wednesday, March 12th, at 7.30 P.M.

MENTAL AFTER-CARE ASSOCIATION.—The annual meeting of this association will be held on March 11th at the Mercer's Hall, Ironmonger-lane, London, E.C., when Sir Charles C. Wakefield will preside.

SOCIETY FOR THE STUDY OF INEBRIETY.—The annual meeting of this society will be held in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, W., on Tuesday, April 8th, 1924, at 4 P.M., when Dr. Bedford Pierce will open a discussion on Mental States in Alcoholism.

THE ANGLO-RUSSIAN MEDICAL COMMITTEE.—A committee has been formed under this title, which is also described as a "Public Health Contact Committee," its object being to obtain mutual information on medical and sanitary work and organisation in England and Russia. The scope of the committee has not yet been defined, but will be settled at the first meeting of the committee, which will take place immediately. Dr. L. Haden Guest, M.P., is acting as honorary secretary. One of the first questions for consideration will be the possibility of fighting epidemics on international grounds, the practical outcome of which would be the giving of assistance to Russia in the anti-malarial campaign.

Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, FEB. 28TH.

LORD MUIR-MACKENZIE, on behalf of the Government, introduced a Bill to consolidate the existing Health Insurance Acts.

TUESDAY, MARCH 4TH.

National Health Insurance.

The Government's Bill to consolidate the existing National Health Insurance Acts was read a second time.

HOUSE OF COMMONS.

TUESDAY, FEB. 26TH.

Small-pox in British and Indian Armies.

Mr. WHITELEY asked the Secretary of State for War how many cases of, and deaths from, small-pox occurred in the various commands of the British and Indian armies during the years 1921 and 1922.—Mr. STEPHEN WALSH replied: The following are the statistics asked for:—

British Army.

Command.	1921.		1922.	
	Cases.	Deaths.	Cases.	Deaths.
India	32	7	25	10
Iraq	18	4	6	Nil
Turkey	Nil	Nil	5	Nil
All other commands ..	Nil	Nil	Nil	Nil
Total	50	11	36	10

Indian Army.

Northern	25	2	No figures available.
Southern	13	1	
Eastern	8	Nil	
Western	5	1	
Total	51	4	

Report of Far Eastern Commission on Venereal Disease.

Viscountess ASTOR asked the Secretary of State for the Colonies whether he would consider the advisability of submitting to Parliament the report of the Far Eastern Commission of the National Council for Combating Venereal Diseases, including the Commission reports on Hong Kong, Singapore, and Colombo.—Mr. J. H. THOMAS replied: The document in question is not an official report, and its publication is a matter for the National Council for Combating Venereal Diseases. I regret that I should not feel justified in directing its publication at the expense of the State, but I have no doubt that the Council will readily afford facilities to any honourable Members who may wish to peruse the report.

Poor-law Administration.

During the debate on the action of Mr. Wheatley, the Minister of Health, in rescinding the Poplar Order made by Sir A. Mond in 1921, Dr. HADEN GUEST, Parliamentary Private Secretary to the Minister, urged the introduction of a human note into the administration of the Poor-law. There was, he said, every reason for taking children out of the control of the Poor-law and putting them under the control of the education authority. There was every reason for taking the administration of the Poor-law—infirmaries, parish medical services, and so on, and especially the large children's hospitals—out of the control of the Poor-law altogether and using them, with other medical services in the country, to form the basis of a really great public health and medical service. That, he added, could be done.

WEDNESDAY, FEB. 27TH.

Small-pox Cases from 1911 to 1920.

Lieut.-Colonel FREMANTLE asked the Minister of Health the number of cases of small-pox notified on an average for the years 1911 to 1920 and, respectively, in each of the last three years and this year up to date; and the proportion of infant or primary vaccinations to births in each corresponding period, this year excepted.—Mr. GREENWOOD (Parliamentary Secretary to the Ministry of Health) replied: The average number of cases of small-pox notified during the years 1911 to 1920 (civilians only) was 146·3 per year. The numbers of cases notified since 1920 have been as follows: In the year 1921, 315; 1922, 973; 1923, 2486; 1924 (up to Feb. 9th), 478. The figures for 1923 and 1924 are provisional. The proportion of children born during the years 1911 to 1920 who were vaccinated was 45·0 per cent. For 1921 the proportion was 38·3 per cent. The figures for 1922 and 1923 are not yet available.

London School of Hygiene.

Lieut.-Colonel FREMANTLE asked the Minister of Health when the charter of incorporation of the London School of Hygiene, founded through the munificence of the Rockefeller Trustees, would be sealed and published.—Mr. WHEATLEY replied: I hope that the charter of incorporation will be granted in the course of the next few weeks.

Compulsory Vaccination.

Mr. BLACK asked the Minister of Health whether, in view of the fact that in Leicester during 17 years up to the end of 1922 there was not a single death from small-pox, whilst the vaccination rate fell during the same period from 18·3 per cent. to 3·4 per cent., and that for the whole of England and Wales during the same period the total number of deaths had been 255, with a falling vaccination rate of from 73 per cent. to 38·3 per cent., he would bring in a measure to repeal the 1907 Vaccination Act, abolish all compulsion, and leave the question of vaccination to the discretion of the individual citizen.—Mr. WHEATLEY replied: I am considering the present position in regard to vaccination, but I am unable to give any promise to introduce legislation on this subject.

Removal of Advanced Tuberculosis Cases.

Mr. SOMERVILLE HASTINGS asked the Minister of Health whether he could give the number of persons suffering from advanced tuberculosis of the lungs who were living in the same overcrowded homes with, and infecting, their relations; and whether he intended to bring forward legislation for the compulsory removal, if need be, of such persons.—Mr. WHEATLEY replied: I regret that the information asked for in the first part of the question is not available, as regards the second part, this matter will be considered in connexion with any proposals for the amendment of the Public Health Acts.

THURSDAY, FEB. 28TH.

Mental Cases in Prisons.

Mr. STRANGER asked the Under Secretary of State for the Home Department whether he was aware that there were in prisons many inmates mentally and medically unfit confined in observation cells, but in charge only of the ordinary disciplinary officer; and whether, in future, he would arrange to have those men placed in charge of a medical prison orderly instead of a disciplinary officer.—Mr. RHYS DAVIES replied: The number of hospital officers at present available does not admit of this being done in every case, but the Prison Commissioners are making the best arrangements possible within the resources at their disposal and those resources are being steadily improved.

Hostels for Ex-Service Mental Patients.

Sir ELLIS HUME-WILLIAMS asked the Minister of Health (1) whether the hostels recently started for the reception of ex-Service mental patients were entirely distinct and apart from lunatic asylums; whether the hostels were provided with recreation grounds and games; and what medical staff was employed at each. (2) How many hostels, other than asylums, for the reception of ex-Service mental patients had been started, where they were situated, and how many men were now under treatment.—Mr. F. O. ROBERTS replied: Under the existing law I have no power to establish or control institutions for the treatment of pensioners

certified to be insane, except under powers vested in some existing licensee or local authority. As previously announced to the House, the Government has made special arrangements for a selected number of certified cases of a hopeful type likely to make progress under special treatment. Accommodation for 150 such cases is provided at the old manor, Salisbury, and for a further 300 at Kirkburton, a detached block at Storthes Hall Asylum, near Huddersfield. At the former institution there are two medical officers and in the latter three, in addition to the medical superintendent of the main asylum. In both institutions ample facilities are provided for recreation and games, and at the latter there is a welfare officer, whose special duty it is to look after the general welfare of the patients, apart from the purely medical treatment. As regards those mental cases which are not certifiable under the Lunacy Law, it has always been the policy of my department to provide special treatment and accommodation with a view to their complete recovery. To that end, the Ministry have given special training to a number of medical officers and established throughout the country neurological hospitals and clinics where skilled treatment on the most approved modern lines is provided. These efforts have, I am glad to say, met with conspicuous success, for instance, as is shown by returns for a recent quarter, the percentage of those patients discharged recovered or improved is about 70, while in one hospital devoted to the most serious cases, out of 134 patients treated during the year, 68 were discharged recovered, while of the remainder a number had shown considerable improvement. At all these hospitals full provision is made for the recreation, amusement, and occupation of these patients under a welfare officer. These hospitals, numbering 19, are situate at Edenhall, Edinburgh; Shotley Bridge, Gateshead; Oulton Hall, Leeds; Mossley Hill, Lancs; Maghull, near Liverpool; Harrowby Camp, near Grantham; Aston Court, Bristol; Bath; Fernbank, near Rochampton; Ewell, Surrey; Orpington, Surrey; Richmond, Surrey; Sidcup, Kent; Leopardstown, Co. Dublin; Saltash, near Plymouth; Romford, Essex; Craigavon, Belfast; Latchmere, Surrey; Rotherfield Court, Henley-on-Thames. The approximate number of beds is 3024. The number of men under treatment on Jan. 31st was 2772. The total number of medical officers dealing with the treatment of these cases is 67.

Medical Appointments in Prisons.

Sir MURDOCH MACDONALD asked the Under Secretary of State for the Home Department, in view of the opinion of Lord Justice Atkin's Committee on insanity and crime, and of the accompanying memorandum of the Council of the British Medical Association, whether the similar recommendations made by the Departmental Committee on Prisons in April, 1895, to the effect that candidates for medical appointments in prisons should be required to show that they had given special attention to lunacy, had ever been carried out; and would he furnish a return showing the experience in the treatment of insanity before appointments in prisons and criminal asylums.—Mr. RHYS DAVIES replied: When candidates are selected for the appointment of medical officers preference is always given to those who have had some experience of lunacy. Of the 24 whole-time medical officers now serving, 13 had asylum experience, and five had attended students' courses at asylums. As regards posts for part-time medical officers, these are filled by practitioners in the locality and preference is given, wherever possible, to those who have had special experience of lunacy. The medical superintendent of Broadmoor Asylum and his deputy had had asylum experience before their appointment.

Blind Pensioners.

Mr. GILBERT asked the Minister of Pensions the number of blind pensioners pensioned by his department; what was the average pension received by such pensioner; whether, if such pensioner was the inhabitant of a home or hospital for the blind, any deduction was made from the pension; and, if so, what amount.—Mr. F. O. ROBERTS replied: There are 1550 totally blinded officers and men all of whom are receiving pension from my department at the maximum rate. The amount paid in such varies according to rank and family, an unmarried private receiving pension at the rate of 40s. a week. Allowances for wives and children of married men are additional. These pensioners are cared for by St. Dunstans (or in Scotland by Newington House), and when they are in either of these institutions they receive allowances at the maximum rate of pension without any deduction.

Medical Examination of Air Force Candidates.

Lieut.-Colonel RUDKIN asked the Under Secretary of State for Air if he was aware that candidates for the Air Force, after they had successfully passed the necessary examinations, were reviewed by the medical authorities, and in some cases rejected; and, in view of the hardship created and the time and money wasted, would he take steps to ensure that the medical examination should be held prior to the written or oral examination.—Mr. LEACH replied: The answer to the first part of the question is in the affirmative. The possibility of holding the medical examination prior to the examination conducted by the Civil Service Commissioners was carefully considered recently, and the conclusion arrived at was that the disadvantages outweighed the advantages. I may add that this opinion was shared by the headmasters who were consulted by the departments. Parents and guardians are strongly recommended in the regulations to have their sons or wards examined by a medical practitioner or by a Royal Air Force preliminary medical board previous to their becoming candidates for commissions in the Royal Air Force, and full details of the medical standards are published in the regulations. If my hon. and gallant friend's question refers to candidates for aircraft-apprenticeships as well as to cadets, I may add that the same reasons for holding the educational examination first are applicable to their case.

TUESDAY, MARCH 4TH.

Harnett v. Bond.

Mr. COSTELLO asked the Prime Minister whether, in view of the evidence given before Mr. Justice Lush and the verdict of the jury and the observations of the learned judge in the case in which a Mr. Harnett was awarded damages amounting to £25,000 against two medical men for causing his confinement as a lunatic, he would without delay appoint a Royal Commission to inquire into the present lunacy laws and their administration, and the conditions under which persons alleged to be insane could under existing regulations be deprived of their personal liberty and confined in asylums or otherwise placed under detention.—Mr. COMYNS-CARR asked the Prime Minister whether his attention had been called to the verdict of the jury and observations of Mr. Justice Lush in the recent case of Harnett *v.* Bond and Adam in the King's Bench Division; and whether a Royal Commission would be appointed forthwith to inquire into the best means of preventing the state of affairs which appeared to prevail with regard to the law and administration relating to lunacy.—Mr. TURNER-SAMUELS asked the Prime Minister whether his attention had been called to the case of Harnett *v.* Bond and another in which on Wednesday a jury found that the defendant's doctors were guilty of wrongly detaining the plaintiff as an inmate of various asylums from Dec. 14th, 1912, to Oct. 15th, 1921, a period of nine years, that the evidence showed that the plaintiff was not of unsound mind on Dec. 14th, 1912, and that during the whole time from then he was fit to be at large; and whether he would immediately have a Royal Commission or other form of inquiry set up to inquire into the administration of the Lunacy Acts in this particular, and especially in regard to the sufficiency of the steps that were taken by the Commissioners in Lunacy and other responsible persons, and the means that were available to an inmate to prevent persons from being detained in lunatic asylums when they ought not to be so detained.—Mr. RAMSAY MACDONALD replied: The proceedings in this case closed as lately as Friday last, and the shorthand notes have only just been received. The Government have not yet had time to give proper consideration to the difficult and complex issues raised, but prima facie it would appear that there is a case for full inquiry, and the Government are fully prepared to consider the setting up of an appropriate body to undertake such an inquiry. I may add that I understand the question of an appeal is under consideration.

Dr. SPERO asked the Under Secretary of State for the Home Department whether, having regard to the verdict of Harnett *v.* Bond and others, and to the damages awarded, his department proposed to accept any responsibility in the matter.—Mr. GREENWOOD replied: I have been asked to reply, and would refer the hon. Member to the answers given by the Prime Minister on this subject.

On the motion for the adjournment of the House, Mr. TURNER-SAMUELS called attention to what he termed the maladministration of the lunacy laws, which, he said, was creating a very definite and scandalous menace to personal liberty. The facts that had recently been revealed in the case of Harnett *v.* Bond proved conclusively that in many cases people who were sane were being immured within the walls of an asylum without having any right to be there at all. There were, of course, urgent and dangerous cases which called for immediate action, but full safeguards should be taken to prevent improper detention. He had personally gone carefully into all the facts connected with certification, discharge, and medical inspection, and he had ample evidence that in every head and department of the administration of the lunacy laws, not only was there neglect but there was also danger to personal liberty. He urged the Government to set up immediately a Royal Commission to look into the bad conditions prevailing in the administration of the lunacy laws.

Mr. GREENWOOD (Parliamentary Secretary to the Ministry of Health) said that the Prime Minister had given a most sympathetic answer to a question that afternoon, and having regard to the fact that an appeal had been lodged, the matter was sub judice. He understood that the appeal might be heard at an early date, after which the Prime Minister would consider the advisability of having the inquiry started at once.

Miners' Phthisis.

Mr. GAVAN-DUFFY asked the Secretary for Mines if he would state what were the terms of reference he had made to the health advisory committee respecting the death of an iron-ore miner named Wilkinson from miners' phthisis; when the members of the health advisory committee were likely to receive the reference which he had made to them; and was he aware that it was now nearly 12 months since any meeting of the health and safety committee of the metalliferous mining industry had been held.—Mr. SHINWELL replied: The facts reported by my hon. friend about the death of Wilkinson were brought before my health advisory committee at their meeting last week, and are being considered by them as part of their general inquiry into dangers from dust. There was no formal reference. I am aware that the Health and Safety Subcommittee of the Metalliferous Advisory Committee has not met for some time; but this has not prevented health questions affecting the industry being dealt with by my health advisory committee, of which the chairman of the subcommittee in question is a member.

Miners' Welfare.

Mr. BATEY asked the Secretary for Mines the total amount paid into the welfare scheme and the total amount paid out for approved schemes; and how many of the approved schemes included pit-head baths.—Mr. SHINWELL replied: The total amount paid into the Miners' Welfare Fund, together with interest on investments, amounted at Feb. 29th, 1924, to £2,608,180 0*s.* 6*d.* The total amounts actually paid out at that date for approved schemes were £837,779 10*s.* 6*d.* from district funds and £60,372 12*s.* 2*d.* from the general fund, but the total amounts allocated to such schemes were about £1,570,500 and £86,000 respectively. The number of approved schemes which include pit-head baths is eight.

Mothers of Weak Intellect.

Mr. G. OLIVER asked the Minister of Health whether, in order to ascertain the magnitude of the question of children born in our Poor-law institutions of mothers of weak intellect, he would issue instructions for the necessary information to be collected.—Mr. WHEATLEY replied: I will consider my hon. friend's suggestion.

The Lister Ward.

Mr. J. BROWN asked the Secretary for Scotland whether, in view of the great interest and value of the Lister ward in the Royal Infirmary of Glasgow, and the strong pleas for its preservation received from all over the world, he would consider the advisability of taking immediate means to ensure that demolition would not be begun until an inquiry could be made.—Mr. ADAMSON replied: I have no authority to intervene in this matter.

KENT AND CANTERBURY HOSPITAL.—The supporters of this hospital have adopted a scheme for collecting subscriptions, known as the Propaganda Committee's Hospital Box Scheme. The third annual meeting of this committee was recently held at Canterbury. The number of honorary representatives, officials, and stewards is over 800, and the subscribers number over 12,000. In order to eliminate the competition of those towns and villages which have to support local hospitals, it is proposed to bring all these institutions under the scheme, and to give patients the choice of hospital, all patients to be paid for by the fund. In order to effect this object representative committees will be appointed in every town and district, controlled by a representative central committee. The annual report states that the total receipts for 1923, including the special ambulance fund, were £6833. On account of box subscriptions they had paid to the hospital £5500, while £258 had been paid direct on account of entertainments, &c. The working expenses totalled £312. On the Ambulance-Garage Fund the total receipts were £885, the cost of the ambulance being £679. The income of the hospital for 1923 was £13,348 and the expenditure £13,289, leaving a credit balance of £59. The number of in-patients admitted during the year was 1483, against 1290 in 1922, and out-patient attendances were 21,918, against 19,905; 736 in-patients were admitted on box subscription certificates, their total cost being £5547. The total cost per head amounted to £7 10*s.* 9*d.* for in-patients and 1*s.* 8*d.* for out-patients.

Appointments.

DUNSCOMBE, N. D., M.B., B.Ch., D.P.H. Camb., L.M.S.S.A., has been appointed Assistant School Medical Officer, Somerset County Council (Bath area).

GILLILAND, H., M.B., Ch.B. Edin., Medical Officer, Staines Workhouse.

St. Thomas's Hospital: HOPE-SIMPSON, J. W., M.B., B.Ch. Camb., YATES, H., M.R.C.S., L.R.C.P. Lond., CREED, R. S., M.B., B.Ch. Oxf., BERRIDGE, W. C. M., M.R.C.S., L.R.C.P. Lond., JEFFERY, A. L. P., M.B., B.S. Lond., WALFORD, A. S. H., M.B., B.Ch. Camb., WEBB-PEPLOE, M. H., M.B., B.Ch. Camb., METCALFE, G. A., M.B., B.Ch. Camb., Casualty Officers and Resident Anæsthetists; DYSON, A. D., M.R.C.S., L.R.C.P. Lond., MURRELL, E. B., M.R.C.S., L.R.C.P. Lond., COOPER, G. K., M.B., B.Ch. Camb., PALMER, H. M., M.R.C.S., L.R.C.P. Lond., Resident House Physicians; STORY, A. G., M.B., B.Ch. Camb., Resident House Physician (for Children); LAUTRÉ, M. A., M.R.C.S., L.R.C.P. Lond., LUPTON, C. A., M.R.C.S., L.R.C.P. Lond., BRIGGS, T. E., M.R.C.S., L.R.C.P. Lond., WILLIAMS, L. G., M.R.C.S., L.R.C.P. Lond., Resident House Surgeons: ALLAN, F. G., M.R.C.S., L.R.C.P. Lond., Resident Orthopædic House Surgeon; PEARCE, T. V., M.B., B.S. Lond., JONES, B. H., M.R.C.S., L.R.C.P. Lond., Resident House Surgeons for Ear and Throat respectively; ALLEN, H. S., M.R.C.S., L.R.C.P. Lond., Senior Obstetric House Physician; CROCKFORD, A. L., M.B., B.Ch. Camb., Junior Obstetric House Physician; PENMAN, G. G., M.R.C.S, L.R.C.P. Lond., Senior Ophthalmic House Surgeon; BATTSON, A. A., M.R.C.S., L.R.C.P. Lond., Junior Ophthalmic House Surgeon; CAVENAGH, J. B., M.B., B.Ch. Oxf., NEILSON, D. F. A., F.R.C.S. Eng., DOYLE, A. F., M.R.C.S., L.R.C.P. Lond., BARRON, H. T., M.D. Lond., FACEY, R. V., M.R.C.S., L.R.C.P. Lond., DOGGART, J. H., M.R.C.S., L.R.C.P. Lond., MARRINER, H. I., F.R.C.S. Edin., JARRATT, W. O. C., M.R.C.S., L.R.C.P. Lond., TURNEY, H. F., M.B., B.Ch. Oxf., COOKE, A. M., M.B., B.Ch. Oxf., WALKER, E. G. L., M.R.C.S., L.R.C.P. Lond., WEAVER-ADAMS, E. R., M.R.C.S., L.R.C.P. Lond., HALLIWELL, C. C., M.R.C.S., L.R.C.P. Lond., MITCHESON, G. F. L., M.B., B.Ch. Oxf., FIRTH, E. K. A., M.R.C.S., L.R.C.P. Lond., DUNN, W. H., M.R.C.S., L.R.C.P. Lond., THORP, K. W., M.R.C.S., L.R.C.P. Lond., STARKEY, R. S., M.R.C.S., L.R.C.P. Lond., STEVENS, A. L. B., M.B., B.Ch. Oxf., DUNN, W. H., M.R.C.S., L.R.C.P. Lond., RICKMAN, J., M.B., B.Ch. Camb., Clinical Assistants.

Certifying Surgeons under the Factory and Workshop Acts: LEWIS, G. M., L.R.C.P. Lond., M.R.C.S. (Peasenhall); HOCKEN, D. F., M.B., B.S. Durh. (St. Blazey); KENNEDY, F. H., M.B., B.S. Durh. (Pershore); ELAM, J. E. (Barnet); ADAM, J. C., M.B., Ch.B. Edin. (Forres).

Vacancies.

For further information refer to the advertisement columns.

Albert Dock Hospital, Connaught-road, Greenwich, E.—H.S. £150.

Barbados General Hospital.—Jun. Res. S. £250.

Bath Ear, Nose and Throat Hospital, Marlborough Buildings.—Hon. Pathologist.

Bootle Borough Hospital.—Jun. Res. M.O. £125.

Bradford Children's Hospital.—H.S. £125.

Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C.—Res. H.S. £75.

Charing Cross Hospital, W.C.—Asst. Obstet. P.

Colchester, Essex County Hospital.—Asst. H.S. and Reg. £150.

Colindale Hospital, Hendon, N.W.—Jun. Asst. M.O. £500.

County of London.—Coronership of the Southern District. £1041 6*s.*

County of London Mental Hospitals.—Seventh Asst. M.O.'s. £440.

Doncaster Royal Infirmary and Dispensary.—Jun. H.S. £150.

Dorset Mental Hospital, near Dorchester.—Third Asst. M.O. £350.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Morning Cas. O. £120.

Evelina Hospital for Children, Southwark, S.E.—H.S. and H.P. Each £160.

Exeter, Royal Devon and Exeter Hospital.—H.P. £150.

Federated Malay States, Central Mental Hospital.—Asst. Med. Supt. £616.

Greenwich, Dreadnought Hospital.—H.S. and H.P. Each £150.

Halifax Royal Infirmary.—Third H.S. £150.

Kensington Dispensary and Children's Hospital, 49, Church-street, W.—R.M.O. £150.

Liverpool, City Seamen's Dispensary.—Asst. Ven. Dis. M.O. £700.

London Lock Hospital, 91 Dean street, W.—H.S. £200.

Maidstone, Kent County Ophthalmic Hospital.—Res. Surg. O. £750.

Manchester, Ancoats Hospital.—R.M.O. £175.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Asst. P.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Res. H.P.'s and H.S.'s. Each £50.

Northampton General Hospital.—H.S. £150.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Pathologist. £300. Also Asst. S.

Redhill, Surrey, Royal Earlswood Institution.—Jun. Asst. M.O. £250.

Rotherham Hospital.—Jun. H.S. £150.

Royal College of Veterinary Surgeons, 10, Red Lion-square.—Two Examiners.

Royal Ear Hospital, Dean-street, Soho, W.—Hon. Anæsthetist.
Royal Free Hospital, Gray's Inn-road, W.C.—H.S.
Royal Northern Hospital, Holloway, N.—M.O. to Out-Patients. £150.
Royal National Orthopædic Hospital, 234, Gt. Portland-street, W.—H.S. £150.
St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—H.S. £75.
Salford Royal Hospital.—Res. M.O. £175. Three H.S.'s and Cas. H.S. Each £125.
Sheffield Royal Hospital.—Res. Surg. O. £200.
Warrington, Lancashire County Mental Hospital, Winwick.—Asst. M.O. £440.
West Ham Union.—District M.O. £700. Also Res. A.M.O. £350.
West London Hospital, Hammersmith-road, W.—One H.P. and Two H.S.'s. Each £100.

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment at Ayr.

Births, Marriages, and Deaths.

BIRTHS.

LAPAGE.—On March 2nd, at Forest Row, Sussex, the wife of F. Claud Lapage, M.R.C.S., L.R.C.P., of a daughter.

WEBB-JOHNSON.—On Feb. 27th, at "Cricklewood," East Sheen, the wife of Dr. Cecil Webb-Johnson, of a daughter.

DEATHS.

BICKERSTETH.—On Feb. 29th, at Bournemouth, Robert Alexander Bickersteth, F.R.C.S., of Borwick Lodge, Hawkshead, aged 61 years.

CLARK.—On Feb. 26th, at Greenbank, Street, Somerset, Ann Elizabeth Clark, M.D., in her 80th year.

FITZGERALD.—On March 1st, after a long illness, at his residence, Cappawhite, Co. Tipperary, Ireland, Joseph FitzGerald, M.D.

JAMIESON.—On Feb. 27th, at Cromwell-road, S.W., Thomas Hill Jamieson, M.B.E., M.D., M.R.C.P. Edin., aged 50.

REID.—On Feb. 27th, at Okement, Okehampton, Inspector-General Walter Reid, M.D., R.N. (retired), aged 83 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, March 10th.

WAR: at 5 P.M.
Paper:
Flight-Lieutenant H. L. Burton, R.A.F.: Psychomotor Responses in Relation to Flying (with particular reference to an apparatus invented by Flight-Lieutenant G. H. Reid, D.F.C., R.A.F., for Determining Flying Reaction Times).
Demonstration:
Flight-Lieutenant G. H. Reid, D.F.C., R.A.F.: Apparatus for Determining Flying Reaction Times.
To be followed by a discussion.

Tuesday, March 11th.

THERAPEUTICS AND PHARMACOLOGY: At 4.30 P.M.
Paper:
Prof. W. Storm van Leeuwen (Leyden): A theory of Asthma, with special reference to the Influence of Climate.
To be followed by a discussion in which Mr. Frank Coke and others will take part.

PSYCHIATRY: At 8.30 P.M.
Paper:
Dr. Sullivan: The Relation of Alcoholism to Insanity and to Crime.

Wednesday, March 12th.

SPECIAL DISCUSSION: At 5 P.M.
On the Possible Substitutes for Cocaine. Sir William Hale-White (President of the Society) in the chair. Opener: Dr. H. H. Dale. Prof. W. E. Dixon, Prof. C. S. Gibson, Mr. T. B. Layton, Sir Maurice Craig, Mr. Foster Moore, Mr. E. Watson-Williams, and others will also speak.

Thursday, March 13th.

NEUROLOGY: At 8 P.M. (At the National Hospital for the Paralysed and Epileptic, Queen-square, W.C.)
Clinical Meeting.

Friday, March 14th.

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
Cases:
Dr. C. F. T. East: Diabetes Insipidus with Unusual Features.
Dr. D. Firth: Congenital Absence of Sternal Portion of Pectoralis Major.
Short Papers:
Dr. T. Stacey Wilson: (1) Three Cases where Nervous Symptoms were due to the Dilatation of the Deep Thigh Veins; (2) Temporary Loss of Memory, similar to that in Double Personality, due to Colon Disturbance.

OPHTHALMOLOGY: At 5 P.M. (At the National Hospital, Queen-square, W.C.)
Clinical Meeting.
Members of the Section have been kindly invited to tea at 4.30 P.M. by the Committee of the Hospital.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, March 10th.—8.30 P.M., Discussion on the Disturbances of the Nervous System in Hyperpiesia. To be introduced by Dr. Batty Shaw, followed by Sir Humphry Rolleston, Prof. Ernest Starling, Prof. W. Russell, Dr. James Collier, Dr. F. M. R. Walshe, Dr. Geoffrey Evans, and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.
TUESDAY, March 11th.—5 P.M., Lieut.-Colonel Glen Liston, C.I.E.: The Plague. (First Milroy Lecture.)
THURSDAY.—Second Milroy Lecture.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.
MONDAY, March 10th, to Saturday, March 15th.—BETHLEM ROYAL HOSPITAL. Course in Psychological Medicine: Tues. and Sat., 11 A.M., Dr. Porter Phillips and Dr. Thomas Beaton: Psychoneuroses.—CHELSEA HOSPITAL FOR WOMEN. Daily: Operations, &c.: Mon., 5 P.M., Mr. Rivett: Extra-uterine Gestation; Tues., 2 P.M., Mr. Bonney: Wed., 2 P.M., Mr. Dodd: Ovarian Cysts; Thurs., 9.30 A.M., Mr. Provis: Gonorrhœa in Women; Fri., 2 P.M., Mr. Comyns Berkeley: Carcinoma of the Uterus; Sat., 11 A.M., Mr. Goodwin: Pathological Demonstration.—THE ROYAL FREE HOSPITAL. Wed., 5.30 P.M., Dr. Heald: The Medicinal Uses of Ultra-violet Light.—ROYAL NORTHERN HOSPITAL, in conjunction with the CENTRAL LONDON OPHTHALMIC HOSPITAL, NORTH-EASTERN FEVER HOSPITAL, and ROYAL CHEST HOSPITAL. Special Intensive Course (second week). Further particulars can be obtained from the office 1, Wimpole-street, W. 1.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.
POST-GRADUATE COURSE: FEBRUARY–MARCH, 1924.
CLINICAL LECTURES AND DEMONSTRATIONS.
MONDAY, March 10th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Clinical Types of Paraplegia: Dr. Aldren Turner.
TUESDAY, March 11th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Cerebral Vascular Disease: Dr. Adie.
THURSDAY, March 13th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., The Neuroses: Dr. Hinds Howell.
FRIDAY, March 14th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Neurosyphilis: Dr. James Collier.

COURSE OF LECTURES AND DEMONSTRATIONS ON THE PATHOLOGY OF THE NERVOUS SYSTEM.
MONDAY, March 10th.—12 noon, Disseminated Sclerosis: Dr. J. G. Greenfield.
The fee for the Course, including Pathology, is £5 5s. For those who hold Perpetual Tickets the fee is £3 3s.

COURSE OF LECTURES ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM.
WEDNESDAY, March 12th.—12 noon, Cerebral Cortex; Association Systems.
THURSDAY, March 13th.—12 noon, Sympathetic Nervous System: Dr. Kinnier Wilson.
The fee for this Course will be £2 2s.

COURSE OF LECTURES AND DEMONSTRATIONS ON THE NEUROLOGY OF THE EYES.
WEDNESDAY, March 12th.—3.30 P.M., Ocular Palsies and Disturbances of Ocular Movement: Mr. Leslie Paton.
The fee for this Course alone is £5 5s. If taken in conjunction with the general Post-Graduate Course the fee is £3 3s. All applications should be sent to the Secretary, Medical School.
Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.
Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.
J. G. GREENFIELD, Dean of Medical School.

ST. THOMAS'S HOSPITAL, Albert Embankment, S.E.
(In the Governors' Hall.)
THURSDAY, March 13th.—5 P.M., Dr. J. A. Murray: Cancer. (Last Lecture.)

HOSPITAL FOR SICK CHILDREN, Great Ormond-st., W.C.
THURSDAY, March 13th.—4 P.M., Dr. Still: Abdominal Distension.

CANCER HOSPITAL, Kensington, S.W.
WEDNESDAY, March 12th.—4.30 P.M., Mr. C. E. Shattock: Carcinoma of the Colon.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, March 10th.—10 A.M., Surgical Registrar: Surgical Pathology. 12 noon, Mr. Sinclair: Surgical Diseases of the Abdomen. 2 P.M., Mr. Bishop Harman: Eye Dept.

TUESDAY.—12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Banks-Davis: Throat, Nose and Ear Dept. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Pernet: Skin Dept.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.

FRIDAY.—10.30 A.M., Dr. Pritchard: Medical Wards. 12 noon, Mr. Endean: Venereal Diseases. 2 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAYS.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose and Ear.

Daily, 10 A.M. to 6 P.M. Saturdays, 10 A.M. to 1 P.M. In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE. (Prince of Wales's General Hospital.) (At 4.30 P.M.)

MONDAY, March 10th.—Dr. A. J. Whiting: Sinus Arrhythmia.

TUESDAY.—4 P.M., Mr. J. Howell Evans: Hydrocele.

WEDNESDAY.—Dr. J. Browning Alexander: Pulmonary Emphysema.

THURSDAY.—Mr. H. W. Carson: The Early Diagnosis of Cancer of the Stomach.

FRIDAY.—Dr. C. E. Sundell: Bottle Feeding.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

TUESDAY, March 11th.—5 P.M., Dr. Gray: The Tuberculides.

THURSDAY.—5 P.M., Dr. Fox (Chesterfield Lecture): Cutaneous Syphilis.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)

MONDAY, March 10th.—(At the Children's Hospital.) Mr. Morrison: The Diagnosis of Chronic Appendicitis in Children.

TUESDAY.—(At the Southern Hospital.) Mr. Douglas-Crawford: Surgical Cases.

WEDNESDAY.—(At the Northern Hospital.) Mr. Rawlinson: Pyelitis.

THURSDAY.—(At the Stanley Hospital.) Dr. Oram: Demonstration of Radiographs.

FRIDAY.—(At the Royal Infirmary.) Mr. Kennon: Surgical Cases.

VICTORIA UNIVERSITY OF MANCHESTER MEDICAL SCHOOL.

FRIDAY, March 14th.—5.30 P.M., Prof. J. C. Brash: The Growth of the Jaws and Palate.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, March 11th.—4.15 P.M., Dr. G. R. Murray: Significance of Changes of Blood Pressure.

MANCHESTER BABIES' HOSPITAL POST-GRADUATE LECTURES.

FRIDAY, March 14th.—5.30 P.M., Dr. Nesta Wells: Infection in Infants' Wards.

SALFORD ROYAL HOSPITAL LECTURES.

THURSDAY, March 13th.—4.30 P.M., Dr. C. E. Jenkins: The Bacteriology of Joint Infections.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES. (At 3.30 P.M.)

FRIDAY, March 14th. (At the Royal Hospital.)—Mr. Townrow: Demonstrations of Oral Cases.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, March 12th.—4 P.M., Dr. G. B. Dixon: Some Aspects of the Tuberculosis Problem in an Industrial City.

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Notes, Comments, and Abstracts.

WHERE DOES MENTAL HYGIENE BEGIN? *

AN AMERICAN VIEW.

BY L. VERNON BRIGGS, M.D. RICHMOND, VA.,

DIRECTOR OF THE MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE.

ONLY two decades ago we were all working for the better housing of the mentally ill and for humane care of them both inside and outside institutions. We then felt that this was all that we could ask for them, and its accomplishment was a great step forward. Conditions in many institutions—overcrowded as they were—savoured more of the prison than of the hospital. The meagre staffs were only able to look after physical ills called to their attention by ward nurses or by patients themselves. The majority of patients only saw the physician as he passed hurriedly through the wards in which they spent their days and nights. In some of the hospitals no occupation was known other than the polishing of floors and ward, and kitchen work which had no therapeutic value. Exercise in the open consisted of a walk around the grounds under the direction of attendants, the patients being strung out in files. The staffs did little, if any, scientific work, in most of the hospitals, and few hospitals had a laboratory. Operations which had to be performed by visiting surgeons necessitated bringing the patient into one of the ward rooms or doctors' offices, where tin pails and vegetable pans were used for sterilising the instruments over ordinary stoves. This state of affairs persisted as late as 1912.

Outside the institutions the mentally ill received little consideration. Taken from their homes, from boarding places, or from the street when they showed signs of mental aberration, they were thrust into police stations or city gaols and there kept, often for days, before being transferred to a hospital and treated as sick individuals. This condition also obtained in Massachusetts until 1912. So the first step for a generation towards the really humane care of the mentally ill, which was then the height of our ambition, was only reached a decade ago.

Psychopathic Hospital Idea.

The psychopathic hospital idea in this country started as early as 1906 with the Psychopathic Hospital at the University of Michigan. Prior to this an observation ward was established in 1890 in the Philadelphia Hospital, and about the same time Dr. Adolph Meyer developed an observation department in his hospital at Kankakee, Ill. In 1896 the Psychiatric Institute on Ward's Island, N.Y., was established, and under Dr. Meyer psychiatric wards were opened in connexion with the Institute in 1902. Bellevue Hospital and Kings County Hospital in New York also had wards for psychiatric cases. Following the establishment of the Psychopathic Hospital at the University of Michigan in 1906, there was established in 1912 a psychopathic hospital in Boston, at first a department of the Boston State Hospital but since made an independent unit. The following year, 1913, the Phipps Psychiatric Clinic was started at Baltimore under Dr. Meyer, in connexion with the Johns Hopkins Hospital Medical School and Hospital. With the psychopathic hospital idea came more scientific care and treatment within the institutions, although little progress was made outside of institutions or in the community. Pathological laboratories were established in many of our State hospitals and in our general hospitals scientific studies were made of mental disease; but there was no centre of scientific research or direction until the psychopathic hospital idea was established, when another very important objective was reached.

Social Service.

With the establishment of the psychopathic hospital idea came social service. In Massachusetts, following the lead of Richard Cabot with his social service as a part of the Massachusetts General Hospital out-patient department, the Boston Dispensary established a similar service, and there the first social service workers were trained in mental clinics. Comparative statistics for three months without, and for three months with, social workers in the mental clinic of the Boston Dispensary showed that that service prevented the commitment of many early cases by following up early mental treatment, as directed by physicians, and obtaining results beyond the routine treatment of clinical service, and by improving social conditions, thus preventing

* Read at a Conference of Social Work, held at Stamford, Conn., U.S.A.

other members of the same family or of the locality from similar breakdowns. Social service after-care also prevented the return to the hospitals for the insane of many discharged cases. Social case work, follow-up work, research work, educational work were the functions outlined by Miss Hannah Curtis for the social service. So important has this work become that there is now a Training School for Social Workers at Smith College in Northampton, an institution of which the success is established. The requirements are two summers of study at Northampton and nine months of practice in some social agency or hospital social service under the school's supervision—a total course of 13 months. The graduates are prepared for various branches of social case work and community service, especially in psychiatric cases.

Out-patient Clinics.

With the beginning of the better care of the mentally ill two decades ago, there was established an out-patient clinic at the Boston Dispensary for mental cases. There was also a neurological clinic; the staffs of these clinics referred cases to each other, but worked separately. It was my privilege to be elected head of the mental out-patient clinic at the dispensary soon after it was established in 1899, which position I held until 1912, when I became a member of the State Board of Insanity.

Social workers trained in the mental department at the Boston Dispensary proved a valuable aid to the physicians and a blessing to the patients; it revealed the patient's environment, which was often the cause of his breakdown; social agencies soon learned to refer to the mental clinic many cases which heretofore they had not been able to help. With the opening of the Psychopathic Hospital in Boston and the establishment of its out-patient clinic a good deal of the work done at the dispensary was transferred there, which greatly broadened the field, for the Psychopathic Hospital soon took cases from the courts and also from agencies outside of the city. Thus what is now known as mental hygiene began in Massachusetts two decades ago; out-patient departments for mental cases increased so fast that within a little over ten years there were nearly 40 functioning in the State of Massachusetts, and this number has been maintained to the present time.

Education in Mental Hygiene.

The spread of the psychopathic hospital idea and its influence on the community soon began to be felt. The community was becoming educated in mental hygiene. Its influence in court procedure was first made manifest in the establishment of Dr. W. Healy's work in the courts of Chicago in 1909 with delinquent and psychopathic individuals, especially children. This influence has spread to many courts throughout our country, from Boston to Seattle, where to-day one may obtain a liberal education in mental hygiene. With the establishment of the industrial accident boards, mental hygiene became a factor in industry. Many large firms and corporations employ nurses and doctors to instruct their employees in mental hygiene and also to detect the first symptoms of nervous and mental breakdown, correct them, or direct these patients into channels where they may receive early treatment.

Another progressive step taken in mental hygiene tending towards prevention was its introduction into the schools and the application of its teachings. Massachusetts passed a law in 1919 whereby school physicians and school nurses, properly trained, were to be employed for the purpose of studying, assisting, or treating children whose backwardness or delinquency showed they needed special instruction, medical care, or a change in their environments. Teachers are now directed to report to the school physician or school psychiatrist the names of pupils who are backward or show abnormality in their work in any direction, and also of the true delinquent. Psychiatrists then make special examinations and the nurse visits the home.

In order to prevent these children from keeping others back special classes are formed for them. Teachers experienced in the instruction of retarded minds develop these children at least to the point of taking care of themselves, if possible; for the first time in history such children have a fair chance, for they stood no chance whatever when competing with children who had been endowed with much greater powers of assimilating knowledge.

It soon developed that many of the causes of backwardness could be removed if intelligently handled and scientifically treated. Environmental conditions at home, bad habits, glandular difficulties, improper or insufficient feeding—one or several of these often affecting the same child—when removed or cured, enabled that child to take its place in the school and in the world.

So it was in the courts. The child who had been brought into the municipal courts charged with destroying property, or setting fires, with bad habits or being stubborn, or perhaps guilty of petty stealing, sometimes taught by his father or mother, and who had never had an opportunity of knowing right from wrong, was set right, and often made into a valuable citizen, as the result of Dr. Healy's work and, later, of the work of other psychiatrists appointed to the courts. Mental hygiene, which began a few years ago with the child in school and with the early delinquent, has gone a step further and now is to begin with the baby.

Education of the Very Young.

Dr. Douglas A. Thom has organised clinics in Boston with a view to correcting habit formation in babies and very young children, and also ascertaining the cause of any convulsions or other abnormal phenomena which may be observed by those in charge of these babies in the hospitals and in the community. He says, in relation to the behaviour problem of the nervous child, that many of these conditions can be traced to a failure on the part of the individual to adapt himself to his environment, even in the years of childhood, and that we are beginning to feel that more and more frequently the individual is the victim of his environment rather than of his heredity. It is not unreasonable to presume that if there is a group of cases belonging to the economic and social failures which have their beginning in the mental conflicts of childhood, and these conflicts can be discovered at 5 years instead of 13, much will have been accomplished for the child and for all those with whom he is to come in contact. There are certain fundamentals necessary to the mental development of every human being that are more in evidence during childhood that in any other period of life. Those of particular importance because of their utility are: plasticity, suggestibility, imitativeness, and love of approbation. It has been figuratively stated in one way or another that man is extremely complex—that he has very great capacity for modification, and that his period of mobility lasts longer than in other animals. Thus the plasticity of the early years of life should be utilised to its limit in an effort to develop habits which will later serve the individual in good stead.

Not only is it important to study the material with which we are dealing, so far as the child is concerned, but it is quite necessary to know by whom, and under what conditions, this material is being used. The immediate environment, the home and its occupants and surroundings are what go to make up the mental atmosphere in which the child lives.

Education of the Mother.

Much of the child's early life is, or should be, spent with the mother. Her influence cannot be over-estimated, but all too frequently it is not as healthy as we might hope. The mother may be worn out by household cares; she may be striving to supplement the family budget by a few hours of work outside, when she should be resting or in bed; or she may be pleasure-loving, avoiding her duty, having turned her responsibility over to the nursemaid for so many pieces of silver.

Again, we may find that a mother with the most excellent intentions may be over-solicitous. Too frequently she is emotionally unstable; what is condoned to-day may be punished to-morrow; and in spite of ability to adjust rapidly, the child finds it difficult or impossible to follow a consistent line of conduct. There is no situation so pathetic for both mother and child as that of the mentally defective mother who is doing her best, yet failing, and recognising her own failures.

In order to ascertain just what the home situation is and what factors are to be utilised or combated, a trained social worker is employed to make investigation and to see that the doctor's directions are fully understood and are being carried out. It is important not to make mere interviews out of these visits, but to use workers who are not afraid to get down to the social and intellectual level of their hostess, as far as possible. The factors which are likely to contaminate the mental atmosphere of the child can frequently be determined in this way and referred for advice and assistance to the doctor, minister, teacher, social agency, or whatever source to which it seems advisable to turn.

Dr. Thom, feeling that the foregoing principles might be utilised to advantage, has organised "habit clinics" in connexion with the Baby Hygiene Association, to deal with those children who in the pre-school age—that is, between 2 and 5—are developing undesirable habits, and to determine, in so far as possible, the basis of these habits and to institute measures which will tend toward their correction.

Mental hygiene should be inculcated as soon as the child is capable of forming habits, when any abnormal, physical, or mental symptoms appear. The attack on mental disease at this early period, and the following of it through the schools with scientific purpose will, it is hoped, result in our not being called upon to build as many "monuments of resignation," as the State hospitals have been called, for housing and feeding thousands of hopeless derelicts, who represent an immeasurable loss of intelligence to the community. But, as Dr. Thom says, the existence of clinics for children of pre-school age do not require justification.

No claim is here made that there is any relation between the undesirable habits of childhood and psychoses of later life; yet it is not difficult to see how closely these infantile reactions resemble the psycho-neurotic manifestations of adult life, and that a fundamental lack of inhibitions may be a dominating characteristic in a criminal career.

STERILISATION OF RUBBER GLOVES.

Dr. W. Lutzmoer, of Werro, in Estland, writes to *Ars Medici* (1924, ii., 42) to recommend, as a result of nine years' experience, the following method of sterilising rubber gloves: "Put on the perfectly sound unsterilised gloves, and wash the gloved hands with soft soap and water once or twice, then smear the gloves carefully with the following solution, which should be poured liberally on a swab—Rp. iodi puri 2·0 gm., spiritus vini (70 per cent.) 200·0. With this method I have even with laparotomy never seen fever or infection, besides which the gloves last a very long time."

CIVIL SERVICE BONUS.

THE Ministry of Health, in a circular (No. 477) dated Feb. 28th, has informed local authorities that the review on March 1st of Civil Service bonus will be on the basis of an average cost of living figure of 80—i.e., on the same basis as obtained during the six months commencing March 1st, 1923. In the case of salaries over £500 a year the bonus will still be subject to the special percentage deductions specified in 1921. In view of the increase of this bonus the range within which bonus may be paid by local authorities to those of their officers whose remuneration is subject to the Minister's sanction is correspondingly increased.

"POPULAR FALLACIES EXPLAINED AND CORRECTED."

Mr. A. S. E. Ackermann, B.Sc., has spent some 22 years in collecting the material for this book, now in its third edition, in which 1350 popular fallacies are subjected to scientific scrutiny and thereby refuted. The subject-matter, divided into 25 fields of error, comprises nearly the whole domain of human knowledge, from football to astronomy. The author has taken great pains to obtain his information from specialists and authoritative sources, to which he adds touches of humour in many instances. The section entitled "Ourselves" deals with popular misconceptions as regards our bodies and our diseases, and should prove of interest and value to the practitioner who finds himself faced with age-old superstition or modern pseudoc-scientific notions in the course of his ministrations. The book, which is published by the Old Westminster Press at 12*s.* 6*d.*, is well annotated, and contains a preface by Sir Richard Gregory, D.Sc. F.R.A.S. An excellent addition to the reference shelves.

THE DIARY OF A FIELD AMBULANCE.

WE have received a little volume[1] which is a kind o *journal intime* of the 44th Field Ambulance, contributed to by all ranks, and gives perhaps a truer picture of the real life of the army than many more pretentious official histories. It touches lightly on matters of strategy, and adds but little to medical knowledge, but it does succeed in conveying a vivid impression of the life of a divisional medical unit, and of the joys and sorrows of the men who bore the burden and heat of the day. The 44th Field Ambulance was a unit with a very highly developed esprit de corps—"We were, after all, just one large family, and the loss of one after another struck hard at us." It was this spirit which helped them to win a tribute from two infantry commanding officers of the 14th Division during the Battle of the Somme—"At all times officers and men of the 44th Field Ambulance loyally answered to the very many calls made upon them, and carried out their work under heavy fire, regardless of personal danger."

The history of the unit is traced from its formation at Aldershot in September, 1914, its training, its embarkation for France in May, 1915, and through the various battles in which it took part with the 14th Division—"the first unit of the new army to be seriously engaged." Ypres, Hooge, Sanctuary Wood, Arras, the Somme, Telegraph Hill, Glencorse Wood, Inverness Copse, Passchendale, St. Quentin, and the dark days of 1918, Messines and the final Flanders offensive, all tell the tale of its activities. The list of killed and wounded and the record of honours won make an impressive tribute to the work done by a small unit (one of many such), less than a company of infantry in size, and there are many moving passages in the book. Besides this, however, there is a light-hearted, almost impish record of amusing incidents in the unit's career, and sport has quite a considerable share in the chronicle. "Jerry lost the war by concentrating on such silly things as Hymns of Hate. We won it by playing and laughing and doing things in the spirit of the 18th Londons when they dribbled their football across No Man's Land in the attack on Loos." In the creation and functioning of such units as this the Army Medical Service achieved a triumph of organisation of which it can be justly proud.

The volume is illustrated with photographs, plans and some delightful pen-and-ink sketches, and there is a very interesting diagram showing the method of evacuation of wounded from the front line to the base. It is altogether a book which should appeal to everyone who took part in the medical services during the war, particularly those who served in similar units, and the 44th Field Ambulance is to be congratulated on its enterprise in compiling this excellently produced record.

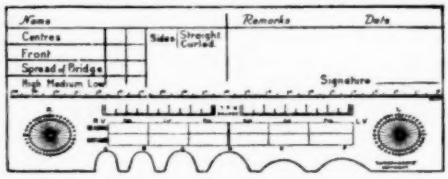
[1] With the Forty-Fourths. Being a Record of the Doings of the 44th Field Ambulance (14th Division). London: Spottiswoode, Ballantyne and Co. Pp. 83. 5*s.*

BAYER "205" AND FOURNEAU "309."

ALTHOUGH nothing definite has yet been announced regarding the composition of Bayer "205," an approximate graphic formula appeared in the *British Medical Journal* of Sept. 23rd, 1922. The *Journal* of the Society of Chemical Industry for Feb. 29th now calls attention to the probable identity of Bayer "205" and Fourneau "309." The latter is said to be a symmetrical urea of meta-amino-benzoyl-meta-amino-paramethylbenzoyl 1-naphthylamine-4.6.8-trisulphonate of sodium. This formula closely resembles that given by Dr. H. King in the annual report of the Medical Research Council for 1921.

AN OCULIST'S FRAME-FITTING PRESCRIPTION CARD.

A DIFFICULTY confronting the general practitioner is to have a ready and easy system of giving instructions to the optician in the matter of supplying properly fitting spectacles. This is important in prescribing astigmatic, bi-focal lenses, &c., which, if ill-fitting, often distort the vision, irritate the patient, and defeat the object of even the best corrections. It applies to the general practitioner who, perhaps, living far away in the country or the Colonies, has taken up refraction work. I have devised a simple Frame-fitting and Prescription Card (see figure) which, when doubled on itself,



gives a measurement of 8 in. long and 1½ in. broad, marked as is customary with opticians, in millimetre scale. The lower section shows a series of usual standard fittings of the bridge of the nose, marked A, B, C, D, E, F. The corrected vision being determined and the axis of the cylinders recorded, the bridge of the nose is measured by fitting on the semi-oval cut-outs, the size being determined according to the letter A, B, C, D, E, or F. Further, a statement as to the height of the bridge is suggested such as *high*, *medium*, or *low*, and is noted on the upper section of the prescription card. To mark off the optical centres (a most important point) the card, folded on itself, showing two oblong spaces, right and left, is placed on the eyebrows, the patient being directed to look straight in front and the pupillary centre is recorded on this special space by the mark X. The final step is to note the width of the forehead or front on the long measured scale. In carrying out the proceedings suggested, no numerical calculations are necessary and no special skill is required. It is not intended that the work of the optician should be usurped, but their services are frequently out of reach of their would-be clients.

The cards have been made for me by the Auroroscope Co., Ltd., Fulwood House, Fulwood-place, Holborn, W.C.

London, W. HENRY DUTCH, M.R.C.S. Eng.

LEEDS WORKPEOPLE'S HOSPITAL FUND.

THE thirty-seventh annual report shows an income of £37,639 for 1923, an increase of £4462, compared with 1922. Workshops—the main source of the income—showed an income of £2539, the workshop contributions in 1923 reaching £27,839. Apart from the maintenance of the convalescent home—a balance of over £28,000 was available for distribution among the local medical charities. Of this sum the Leeds General Infirmary received £18,000, the Public Dispensary and Hospital for Women and Children each £2500, the Maternity Hospital £900, and smaller institutions less sums in proportion.